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THE VERBAL THOUGHT AND OVERT BEHAVIOR OF CHILDREN DURING THEIR LEARNING OF LONG DIVISION[1]

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This study was primarily concerned with the progressive, continuous aspect of learning, *i.e.*, the events that take place during learning. In addition to this purpose was that of studying, through objective means, some of the inner and outer disturbances that accompany the learning process and by means of these objective data to gain a more complete picture than has been possible hitherto of the learning of the material in question.

CONTENT

The material used in this investigation was long division. This mental function lends itself nicely to such an approach, since five major steps of increasing difficulty are successively presented in the treatment of long division. These steps were designated as: (1) long division without remainders, (2) long division with remainders, (3) long division with zero difficulty, (4) long division with three-figure divisors, and (5) long division with non-apparent quotient figures.

SUBJECTS

As principal of the Longfellow elementary school, the writer was granted permission to use public school children for the project. Sixteen subjects from the fourth grade were selected. One subject was chosen because of her extremely high I. Q., as derived from the Binet–Simon Intelligence Test. A second individual intelligence examination yielded an I. Q. of 147 for this subject. Aside from this one subject, an effort was made to select representative subjects, as is evident from the information given in Table I. This table indicates the intelligence and achievement of each subject, the median scores for this experimental group and for the entire class of thirty-nine children from which they were selected, and the standards for each of the tests as given in the test manuals.

PROCEDURE

As previously stated, the mastery of long division requires the understanding of five major types of difficulty. The usual teaching procedure, and that which obtained in the Longfellow School, consists of the presentation of these types. The sixteen selected children were studied individually at each stage in their learning of long division. The writer was granted permission to use the motion picture laboratory at the university for this purpose.

The apparatus used in this study included a motion-picture camera, The Iowa Oral Language Machine, and a psychogalvanometer. The accompanying picture shows one of the subjects in the laboratory situation. The motion-picture camera, the psychogalvanometer, and the three microphones which lead to The Iowa Oral Language Machine are clearly evident. Each child was seated at an adjustable school desk. A partially elevated surface on this desk made it possible to take a motion picture of the child's work. The moving picture camera, stationed on a table three feet in height, was at a distance of six feet from the writing surface. By means of a telephoto lens it was possible to obtain clear pictures of the entire process at this distance, and at the same time to reduce the disturbance to a minimum.

The psychogalvanometer rested on a large table to the left of the subject. The operation of this instrument involved little or no noise. The psychogalvanometric attachment consisted of a two-inch elastic band to which two flat copper electrodes were attached. This attachment was so placed on the free hand that the electrodes were in contact with the palm. The elastic band and a special

[1] A digest of a dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Education, in the Graduate College of the State University of Iowa, August, 1940.

TABLE I

TEST RESULTS FOR SIXTEEN SUBJECTS

Subjects	Kuhlman-Anderson Intelligence Test	Compass Survey Test—1-21-36	Compass Survey Test—5-25-36	Woody-McCall Test—1-24-36	Woody-McCall Test—5-26-36	Gates Reading Test—1-17-36	Gates Reading Test—5-27-36	Iowa Elementary Language Test—1-20-36	Iowa Elementary Language Test—5-27-36
1. J. B.	128	107	106	22	25	11.8	11.2	201	207
2. S. F.	170*	98	96	20	23	5.7	5.2	142	160
3. R. H.	103	82	94	15	19	5.2	6.9	131	139
4. Al. H.	130*	105	112	22	26	8.0	9.7	172	199
5. An. H.	114	98	108	19	23	10.1	10.1	188	176
6. S. J.	105*	105	110	21	19	5.8	5.6	151	155
7. R. N.	110	101	86	20	21	6.3	7.1	119	147
8. I. O.	107*	85	88	12	20	5.5	6.5	105	110
9. C. P.	117	103	106	22	21	7.0	7.5	149	162
10. B. R.	106	90	95	16	17	6.0	6.5	116	137
11. B. Sc.	108	107	108	22	22	5.6	6.2	116	94
12. B. Sm.	92	74		14	20	4.2	5.0	71	88
13. N. T.	112	91	93	20	21	4.9	4.6	108	117
14. D. T.	114		108		23		8.9		155
15. B. W.	102	97	107	20	19	5.2	5.4	129	140
16. R. W.	104	107	109	21	18	8.3	8.6	142	184
Medians	109	98	106	20	21	6.0	6.7	131	151
Class Medians	108	97	100	19	21	6.0	6.5	116	134
Standards		102	109	14	18	4.5	5.0	85	

* I. Q. as derived from the Binet-Simon Intelligence Test.

rubber cushion insured constant pressure at the points of contact. In order to insure constant pressure and to minimize the effect of movement, the band and arm were placed on a pedestal having a rotating top.

The Iowa Oral Language Machine was stationed in an adjoining room. Three microphones were so placed as to catch all verbal reports of the subjects. They also made possible a signaling system between the writer and the operator of the language machine. By means of these microphones it was possible for the assistant not only to get the writer's signals but also to note the progress of the entire experiment.

The above experimental set-up required the services of two assistants. The writer operated the psychogalvanometer, gave the necessary signals to his assistants, and otherwise supervised the procedure. One assistant operated the moving picture machine; the other, the Iowa Oral Language Machine.

In order to insure the proper attitude on the part of the subjects and to avoid apprehensive states which might be caused by the rather unusual setting for the solution of examples and problems, the writer brought the subjects to the laboratory and explained the entire set-up to each child. Each subject was then seated in the adjustable desk, the electrode attached to the palm of the hand, and a preliminary set of addition and subtraction examples worked under conditions identical with those of the actual study. This preliminary project served to satisfy the original inquisitiveness that might have been aroused by the experimental setting.

The first project followed the completion of first instruction in the solution of examples of type A, long division without remainders. Each of the sixteen subjects was brought to the motion picture laboratory. The temperature and heart beat were recorded, as well as information pertaining to general health conditions and activities. Each subject was then seated and the electrode attached. Instructions to the children were identical for each project. They were told to work the examples

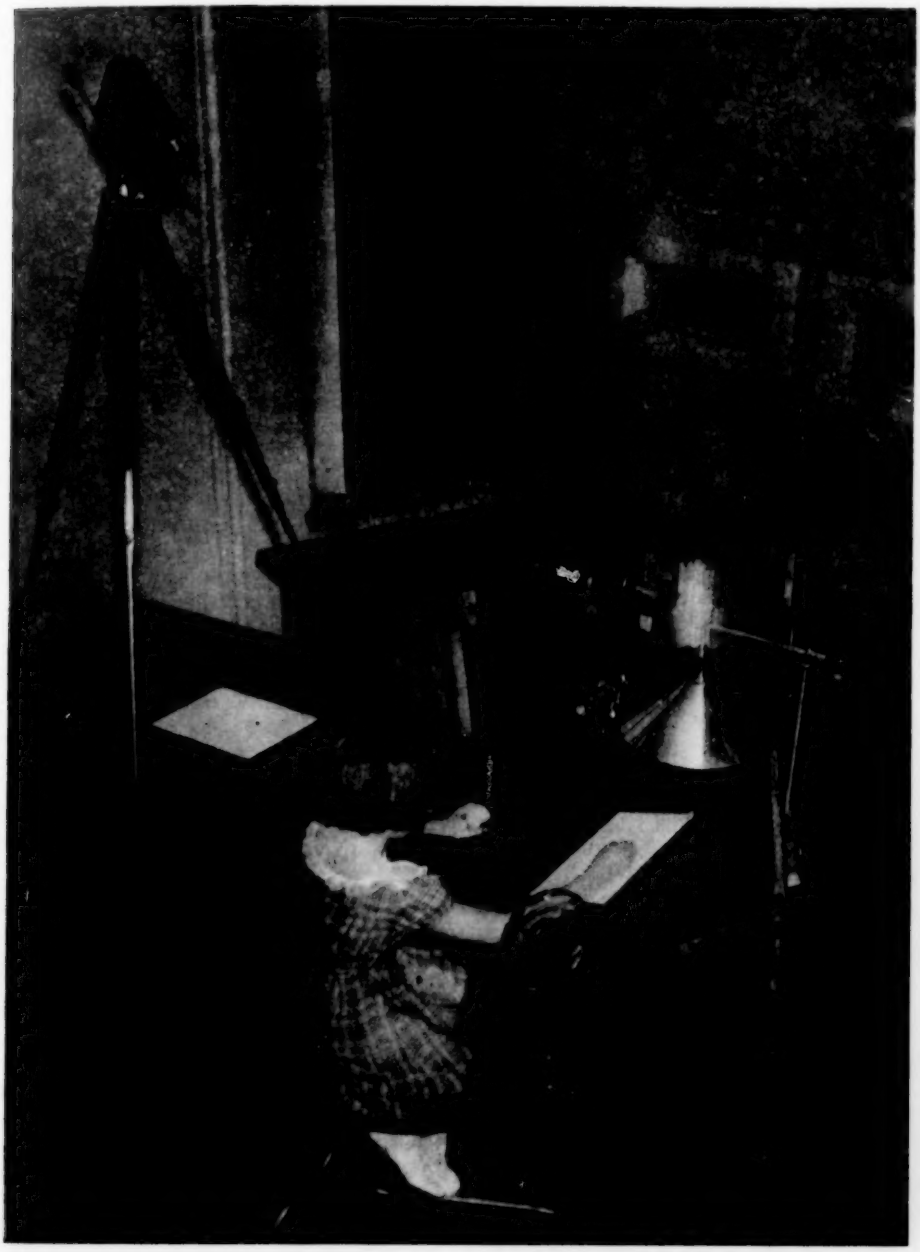

Figure 1.—Laboratory Setting.

and problems presented to them and to do their thinking "out loud." The signals given served both the subjects and the assistants. The signal "get-ready" indicated that the experiment would begin within five seconds. At the signal "go", the experiment began. The signal "stop" was given at the conclusion of each solution.

Project I included two examples of type A and one example of type B, long division with remainders. Thus, each child was confronted with two examples of a type that had just been taught and one example of a type that had not been taught. In addition to these three examples, two verbal problems were presented to each subject, one involving addition and the other long division of type A. A pre- and a post-experimental series of simple subtraction examples were presented for the purpose of orienting the subject to the experimental situation and to give the writer an opportunity to get the pre- and post-experimental electrodermal responses.

Approximately three weeks elapsed between Projects I and II. During this time the children were taught how to solve long division examples with remainders, designated as type B in this study. Project II included one example of type A which had now been transferred to the maintenance program, two examples of type B, and one example of type C, long division with zero difficulty, which had not been taught. As in the previous project, verbal problems and subtraction examples were included.

Projects III, IV, V, and VI were carried on during the remainder of the semester, each succeeding project approximately two or three weeks after the other. In each instance the solution to a new type of long division example had been learned by the class.

Project VI was completed during the last week in May. Three months of vacation followed. During the week of September 7–11, 1937, twelve of the original sixteen subjects were brought into the laboratory and presented with the identical examples and problems as used in Project VI. Four subjects had moved out of the city during the summer. With one exception, arrangements with each of the twelve subjects were made on the same day that they were brought to the laboratory. A special effort was made to prevent any review. In several instances the cooperation of the parents was enlisted in this regard. The writer has every reason to believe that the responses of these subjects represent the status of their "long-division knowledge" after three months of vacation.

The discussion thus far has pertained solely to the sixteen subjects used for the special study. During the entire investigation, however, an attempt was made to secure a complete record of the learning environment, not only of the sixteen subjects of the experimental group but also of the remaining twenty-three members of the class. In order to get a more complete basis for comparison, these pupils were given the exact examples and problems of each project, immediately after the sixteen subjects had been cared for individually.

Data

The investigation made available a large amount of data. The actual written responses to all the examples and problems presented were secured. Thus written solutions to 448 long-division examples, 128 verbal problems involving long division, and 96 verbal problems involving addition, subtraction, and multiplication were obtained.

While such solutions were being written, moving picture records and galvanometric records were simultaneously and synchronously obtained. The moving picture camera was operated at a speed of 8 frames per second, making possible an analysis as fine as 1/8 second if desired. Pictures were limited to the written responses to the long-division examples. Some 7000 feet of such film were thus made available for study.

The Iowa Oral Language Machine yielded dictaphone records of verbal reports. Such records were made for all verbal responses except those to the pre- and post-series of subtraction examples. By means of the metronome it was possible to include five-second intervals on the dictaphone records.

Electrodermal response records were photographically obtained with five-second intervals automatically recorded as vertical lines. These records were made on sensitized paper, 3⅝ inches wide, indicating the subject's level of resistance in ohmage units and the number and amplitude of the deflections. Such records were obtained for the entire experiment, including both the pre- and the post-series of subtraction examples.

Certain observational reports were made to supplement the preceding objective records.

These reports include qualitative statements concerning attitudes and changes in attitudes, qualitative statements concerning behavior and changes in behavior, and special notations of points at which the stimulus key of the psychogalvanometer was pressed.

In addition to such records as pertained solely to the sixteen subjects, there were those which concerned the entire class. The Class Supervisory Chart, an aspect of the supervisory plan used in the school, gave a rather complete picture of the learning status of the entire class with specific reference to class weaknesses and remedial materials used.

The written reaction to the examples and problems of each of the projects was also obtained for the twenty-three children not included in the experimental group. These examples and problems were presented in mimeograph form and in such a way as to present only one at a time. Specific time limits obtained in order that meaningful comparisons with the work of the sixteen subjects might be made.

Analysis

While it can be assumed with considerable confidence that affective experiences do cause variations in electrodermal responses, there is no assurance that stimulation caused by solving arithmetical examples and problems is sufficient to arouse deflections to which significance can be attached. The writer proceeded, therefore, to determine whether such deflections were significant. Having established the significance of such deflections, he tried to determine the immediate effect of conscious failure and success upon electrodermal response records, and the effect of failure unaccompanied by awareness upon the response records.

The effect of failure and success upon subsequent deflections was similarly studied. The 100-second intervals which followed previously determined instances of failure and success were used in studying the effect.

In turning his attention from the electrodermal response records to the written and verbal responses, the writer first tried to determine the effect of failure accompanied by awareness or unawareness and success upon subsequent work. Pauses, hesitating attacks, repetition of numbers and/or words, unusual ejaculations, and expressed failure were recognized as evidences of awareness; their absence, as evidences of unawareness. The verbalization records and the written solutions during the 100-seconds following failure or success were used as a basis for determining whether the subsequent effect of failure and success was positive, negative, or zero. Increased confidence as expressed or as indicated by prompt, steady, and correct attack was considered a positive effect; decreased confidence as expressed or as indicated by a hesitating, stumbling, and incorrect attack was considered a negative effect; and no apparent change in attack as a zero effect.

Following this analysis of materials from the entire study, detailed analysis was made for each of Projects I, III, VI, and VII. Project VII was carried on after the summer's vacation and was included because of the possible information relative to forgetting that might be found. The treatment of each project followed this outline:

1. Learning experiences prior to the project
2. Selected case studies
3. Summary treatment of sixteen subjects
4. Summary treatment of entire class
5. Hypotheses and tentative conclusions

Conclusions

From the experience gained through this study certain conclusions relative to technique and equipment can be made. The Iowa Oral Language Machine provided a technique for gaining information relative to processes in arithmetic, beyond information gained through examination of written responses, that is invaluable. Peculiarities in procedures, omissions in procedures, and other types of errors which are not apparent in written responses are revealed by verbal records.

While the psychogalvanometer did not yield such additional information as had been anticipated, it did serve to indicate in a general way affective reactions that accompany learning. When this instrument has been improved and as a consequence has received wider scientific recognition and approval, it should become a valuable means of supplementing written and verbal records of work.

The motion picture technique substantiates and reinforces evidence accumulated through the other means employed. Limited use for validation of written and verbal reports and, following a given study, for demonstration purposes is recommended.

In the summary that follows, each of the five major conclusions listed is followed by a series of supporting statements. These statements have been derived from such observations and tentative conclusions as were made when Projects I, III, VI, and VII were studied.

I. The written solutions, verbal records, film-analysis records, and electrodermal response records of pupils in this study make available a rather complete picture of overt responses and give some evidence of inner disturbances that accompany the learning of long division.

1. These records supplement and reinforce each other in picturing the progress of solutions, including accuracy, pauses, and significant expressions.

2. These records aid in depicting such mental states as frustration following failure, and confidence following success.

3. The motion picture film substantiates evidences of success and failure, and such accompanying pauses, hesitations, etc., as appear in the written responses, the verbalizations, and the electrodermal records.

4. Verbal responses give cues as to "judging" and "comparing", mental disturbances, and other aspects of the learning process which otherwise would not appear.

5. Of the electrodermal responses that occur during the solution of long-division examples, some significant deflections appear to have been caused by the reasoning or computation involved or to have arisen because of situations or conditions that developed during the process.

6. Electrodermal response records of each subject secured at seven different times over a period of seven months strongly suggest unique patterns for each individual.

II. Examination of written solutions, verbal records, film-analysis records, and electrodermal response records of pupils of this study makes possible an evaluation of the instructional materials used and of the procedures followed.

1. Instruction prior to each of Projects I–VI is adequate for the acquisition of the special skills necessary to the solution of all types of long-division examples for pupils of median and above-median ability.

2. Classroom instruction, supplemented by a specific maintenance and remedial program and by special individual aid, does not insure the mastery of skills necessary to the solution of long-division examples for pupils of below-median ability.

3. The learning environment (first instruction and maintenance) during the semester makes possible the smooth and efficient functioning of new skills and of old skills appearing in new and more complex patterns for the superior pupil, but not for the median and below-median pupil.

4. Mastery of skills and principles necessary to the solution of one type of long-division example is not adequate to the solution of other types. Sequential presentation of the different types appears to be imperative.

5. Instruction in the "additive" method of subtraction and exposure to the "take-away" method result in four methods of subtraction, two of which are variants.

6. Instruction provided in "judging" and "comparing" is clearly inadequate throughout the semester.

III. Inspection of written solutions, verbal records, film-analysis records, and electrodermal response records of subjects of this study makes possible a detailed analysis of pupil successes and failures.

1. Placement of quotient figures offers very little difficulty in any project.

2. Finding first and second-quotient figures accounts for approximately half the errors in Project I, for less than a third of the errors in Project VI, and for less than a seventh of the errors in Project VII.

3. Finding the products within long-division examples accounts for approximately half the errors in Projects I, VI, and VII.

4. Finding differences within long-division examples accounts for approximately half the errors in Project I, for one-third of the errors in Project VI, and for approximately one-fourth of the errors in Project VII.

5. At the close of the semester, skills in multiplication and subtraction do function for the above-median pupil, even though these skills appear in new and more complex patterns.

6. Prior to mastery of long division with remainders, pupils are puzzled by the "remainder" and will permit incorrect products and incorrect differences in order to avoid "remainders".

7. Examples of type D, long division with three-digit divisors, and of type E, long divi-

sion with non-apparent quotient figures, consistently offer more difficulty than other types. The errors are not as a rule peculiar to these types, but appear in such fundamental processes as multiplication and subtraction.

8. The "additive" method of subtraction and its variant make possible such subtractions as 96 from 76 without any apparent misgivings, qualms, or disturbances.

9. "Judging" and "comparing" appear in expressed verbal form, in implied form, and at times in silent form.

10. The terms "judge" and "compare" are seldom used. Some subjects use the terms interchangeably.

11. Less than half of the subjects "judge" and "compare"; some "judge" but do not "compare"; and "compare" but do not "judge"; some do neither; and those who do "judge" and/or "compare" do not do so consistently.

12. Failure to "judge" and/or "compare" does not prevent a consistent, steady attack on examples.

13. Failure to "judge" and/or "compare" definitely increases the number of incorrect and incomplete responses.

14. The errors made by the non-experimental group and the experimental group are not the same in kind or degree. The former pupils were weak in finding quotient figures and multiplying; the latter, in multiplication and subtraction.

15. Very little time beyond that of reading a verbal problem is used to decide the method that is to be employed in its solution.

16. Certain special skills which are necessary for the correct solutions of long-division examples of types C and E appear to be the first to suffer from disuse.

17. Correct procedures involved in the solution of long-division examples and learned during the second semester of the previous school year are functional for 10 of the 12 subjects after a summer vacation.

IV. There is reason to believe that failure and success have a direct effect upon: (1) immediate and subsequent affective stability, and upon (2) immediate and subsequent arithmetic achievement.

1. Evidence of failure and success, and evidence of awareness of failure and success, can be very definitely obtained from the verbalizations and written solutions of subjects.

2. Significant electrodermal response deflections are not the same in number and extent for failure and success, appearing in 32.3 per cent of 164 "failure" situations and in 18.2 per cent of 225 "success" situations, selected from the written and verbal reports.

3. Significant deflections appear in 48.2 per cent of 83 cases where failure is accompanied by awareness; in 16.0 per cent of the 81 cases where failure is unaccompanied by awareness.

4. During the 100-second interval following successful solutions, significant deflections appeared in 27.6 per cent of 217 cases; following failures, in 36.8 per cent of 174 cases, selected from the written and verbal reports.

5. The effect of success upon subsequent work is positive in 93.4 per cent of 221 cases. For each instance of success, .6 error occurred in the subsequent 100-second interval.

6. The effect of failure accompanied by awareness upon subsequent work is negative in 73.3 per cent of 87 cases. For each failure of this type, 1.8 errors occurred in the succeeding 100-second interval.

7. The effect of failure unaccompanied by awareness upon subsequent work approaches zero. (Errors which are directly caused by original failure are not considered.)

V. Several phenomena of learning are observable in the learning activities of the subjects of this study.

1. The learning of new skills often retroactively affects such previously formed skills as multiplication and subtraction when these skills appear within the long-division examples.

2. When confronted with an "impasse", infantile regression occurs, in which case a mental decision is made which permits progress towards an answer by way of familiar skills.

3. Spurious errors such as "4 times 6 is 18" occur in solutions of subjects of varying abilities.

4. Certain special skills which are necessary for correct solution of long-division examples of types C and E appear to be the first to suffer from a period of three months of disuse.

5. An increase in the number of incomplete solutions is further evidence of the effect of disuse.

6. Following a period of three months of disuse, computational skills involved in such multiplication and subtraction situations as occur within long-division examples function effectively for above-median pupils, but fail so to function for below-median subjects.

7. A summer of vacation makes possible the re-emergence of some special individual difficulties, for example, the directional right-left difficulty in the case of subject B. Sm.

8. Occasionally electrodermal response records indicate emotional stresses and strains which are not evident in the outward behavior of some subjects; at times what appears to be emotional instability is not substantiated by the records.

9. Electrodermal response records tend to support the notion that unless the consequences of errors are serious, the emotional disturbance aroused is not significant.

EDUCATIONAL RESEARCH AND EFFECTIVE ART TEACHING[1]

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The 1939 Yearbook of the National Society for the Study of Education, *General Education in the American College,* brings to focus many compelling issues of general education. The aims as stated by Eurich (12) are:

> to relate educational experiences more directly to the needs of human beings who are members of contemporary society, to contribute to the growth of individuals so that they will be more effective in meeting their day-by-day problems—the more social as well as the more personal, the prospective as well as the more immediate—and to develop the desire and capacity for continuous self-education.

In achieving these aims, the arts can play an important role, far more important than they usually play in the narrower program of academic education. However, if the arts are to achieve their full possibilities, educators must know more of the relationship of art to human behavior, for education in the arts is still cluttered with theories and practices based on little more than superstition. Research can do much to improve this condition.

The emphasis on the arts as an integral component of general education is in part a reflection of a trend current in American thought and life to value the arts more highly. Keppel and Duffus (18), in a Recent Social Trends monograph, clearly demonstrate not only that the arts pervade our whole environment, but that we are giving far more time, energy, and money to them than was true ten or twenty years ago. Enrollment in art schools increased from 12,069 in 1920–21 to 18,807 in 1930, and important gifts of art from individuals to the public during 1930 were valued at $17,981,500 as compared with $4,461,118 in 1910. Since the depression there have been many other expressions of this growth—the WPA art, drama, and music projects; the World's Fairs at Chicago, San Francisco, and New York; the development of widely-read art sections in *Time* and *Life*; and a significant attention to art of all kinds in the movies. Of even more immediate importance to educators is the fact that, while the appearance of automobiles, furnaces, refrigerators, and countless other useful appliances was treated casually two decades ago, appearance today is a prominent factor in determining the purchase of such commodities.

Educators have discovered in the arts a field full of opportunities for vital experiences, and in consequence the arts are no longer considered a "frill." In the study of the relations of secondary and higher education in Pennsylvania (19) the arts are considered on an equal basis with such standard subjects as mathematics, English, and history. In The Regent's Inquiry into the Character and Cost of Public Education in the State of New York (16) the arts were given careful consideration. The report of the Committee on the Emotions and the Educative Process (24) emphasizes the relationships between art experiences and emotional development. The Progressive Education Association has sponsored an extensive study of art education in which many issues are brought to attention (8). In the investigations of adolescent and adult needs and interests being conducted currently by the General College, University of Minnesota, (9, 20), the place of the arts is being intelligently studied. Each of these investigations provides the art educator with data of great value in making instruction in the arts more effective.

With such materials at our disposal, we may inquire how well the art instruction offered by the typical college art department meets the needs of individuals in contemporary society. Do such courses squarely and efficiently meet present day needs? Do they give students the experiences, skills, knowledge, and attitudes of most value to them? The typical program offers three approaches to the arts: (1) an historical introduction to the fine arts in which the masterpieces of art

[1] Although the emphasis in this article is specifically on art instruction at the General College level, it carries many implications for art teaching in the public schools. Assistance in the preparation of these materials was furnished by the personnel of Works Progress Administration Official Project No. 465-71-3-36.

are reviewed in chronological sequence; (2) studio courses in drawing and painting in which the emphasis is placed on imitative naturalism, or design courses with an emphasis on abstract relations of forms and colors showing little consideration of useful application to real problems; and (3) courses in esthetics, offered as a branch of philosophy, approaching art by way of theory rather than direct experiences. In the light of data to be presented in this paper, it seems to the writer that none of these approaches meets the needs of the general student, although each may serve a very real purpose in professional curriculums. This paper raises the issue as to how well they meet the needs of the general student.

Before citing experimental data, three major issues concerning research in art education deserve mention. First is the distrust, or downright antipathy, with which many art educators face scientific research in their field. Preferring to decide issues on the basis of opinion or emotion, they have hindered experimental investigations. Suspicious of statistics, they ignore or resist the contribution which can come through the use of statistical procedures. Second, the non-verbal nature of art increases the difficulties enormously. Whereas the symbols of expression in language and mathematics have been reduced to a science, well-adapted to experiment and measurement, the expressive vocabulary of art—form, color, space, line, and texture—is for most research people awkward to handle. This condition is aggravated by our educational procedures which, in the past at least, paid greatest attention to those concepts involving words and numbers, far less to those based on color and sound. Third, research in art education has been largely piece-meal. There have been few (if any) reports of comprehensive, organized investigations in which important problems and issues are clearly stated, in which existing evidence is brought together and organized, and in which plans for future programs are suggested.

In spite of these difficulties, considerable progress has been made in exploring the nature of art activities, particularly art judgment. Thorndike (28), Washburn, Cattell, and Glascock (32), Whitford (35), and Gordon (15) led the way for the more refined experiments of Christensen and Karwoski (5, 6), Meier and Seashore (22, 23), McAdory (21), Brown and Puhr (1), Faulkner (13), and others. This research has provided measures of *art judgment* (not creative ability) which are scientifically acceptable as valid and reliable.

Because of limitations of space, only those issues concerning art judgment important to the art educator at the college level will be discussed in this paper. Art judgment has been chosen from the many possible phases of education in the arts for three reasons: (1) the majority of art educators hold improved art judgment as one of their major aims; (2) the science of values (29) is becoming increasingly significant in a democratic society in which the individual is not only permitted, but is encouraged, to form his own judgments wisely; and (3) there is a greater body of experimental evidence on art judgment[2] than in other fields of art activity. This report is organized around three major questions:

1. What do we know about art judgment in general, and how should this influence our art teaching?
2. How can we use this knowledge in selecting course content and experiences?
3. How can we use this knowledge in planning course methods?

What Do We Know About Art Judgment in General?

I. *How is the Ability to Judge Art Distributed?*—The question, "Can all persons appreciate or judge art, or is this ability limited to a few gifted individuals?" is often asked, and the answer given affects strikingly the art program of any school. If we assume that the ability to judge art is a special ability of limited occurrence, we build art courses only for those who have this ability, and consequently limit enrollment in such courses to such students. The courses would be planned especially for those who possess unusual gifts of discernment. As a matter of interest, some such assumption apparently underlies the art programs of most secondary

[2] The majority of data in the following sections have been derived from art judgment tests which measure the subject's ability to evaluate art objects by the comparative or order-of-merit method. The writer realizes that these tests, as all tests, have limitations, and that in many cases results from them have been seriously misinterpreted. Nevertheless, the tests give satisfactory evidence of validity according to several criteria, as shown in detailed reports referred to in the bibliography. They are in no sense tests of creative ability, nor is it to be supposed that they, any more than other tests, are complete measures of art appreciation.

schools, since the art courses are planned for, and enrollment thereby limited, to a relatively few pupils. This is in sharp contrast to the assumptions and procedures underlying the teaching of such subjects as English or mathematics. The enrollment in college art courses, small in comparison with the enrollment in English or science studies, is due in large part to the belief held by students and advisors that few can profit from art courses. If, on the contrary, we find that the ability to judge art objects is possessed by all persons to some degree, a different approach to art is necessary.

Fortunately, a number of investigators have provided data on this issue. Siceloff (25), who has done extensive work on her McAdory Art Test, gives test score distributions for many age levels, all of which are continuous. Christensen and Karwoski (5) found the same to hold true for their test. Faulkner (13) reports continuous distributions for a college group of 65 students on eight measures of art judgment. In a related field, Carroll (10) reports that the scores of 3,000 high school pupils on the Carroll Prose Appreciation Test form a continuous, approximately normal distribution. In commenting on his data, Carroll emphasizes that his test results indicate that differences in the ability to judge prose are in degree, not in kind. These data are in harmony with the results of many studies indicating that individual differences are quantitative, not qualitative (10). We may conclude, therefore, that art judgment ability, as measured by existing tests, is distributed in a continuous, approximately normal manner. There is no evidence to indicate that there are discrete levels or types of this ability.

The significance of this finding is in danger of being obscured by its apparent obviousness and by its similarity to data on other individual differences. Yet, in spite of the fact that we not only expect to find, but do find, every man to be more or less a judge, countless students and teachers say, "I have no ability to judge art; there is no use in attempting to teach me." More than in other fields of education, there is a constant tendency to set up a dichotomy in the arts with those who "can" on one side, and those who "cannot" on the other. Although few educators would commit themselves to such a statement in writing, their attitudes indicate that this is their belief. When we realize that every citizen is to some degree an art critic (and will undoubtedly act as such at some time or another), the importance and the possibility of developing the critical ability become apparent. All persons can and do choose and select such art objects as clothing, furniture, and draperies, as well as original or reproduced paintings. No sharp line or gulf separates them from the professional art critics. If art courses attract only a few, selected students at the high school or college level, it is time that we find the reason for this discrepancy between potentialities and practices.

II. *What is the Relation of Art Judgment to Chronological Age?*—With the introduction of tests of art judgment have come a number of studies to determine the relationship of art judgment to age. Whitford (35) in an early study concluded that real ability to appreciate art does not begin until the fourth grade. Whorley (37), working with a test of sensitivity to compositional unity, found that young children showed little consistency in appreciation of unity of arrangement. Walton (31) found a relatively steady increase in sensitivity to color harmony from years four to twelve, at which point the yearly gains become increasingly small. Inasmuch as each of these studies is open to serious question,[8] we may proceed to other experiments.

Daniels (7), investigating sensitivity to balance at the pre-school level with a test well suited to the age of the subjects, found that even at the pre-school level, balance was preferred to unbalance, beyond any possibility of chance. Meier reports increases with age on the Meier–Seashore Art Judgment Test. Siceloff (25), in the most thorough study of age norms of art judgment, finds increasingly high scores on the McAdory Art Test from ages eight to eighteen. She says, however, that, "The facts . . . indicate that any improvement in score from 18 on, except as a result of special training, is very slight" (25, p. 24). The writer has begun an in-

[8] We may ask how Whitford defines "real ability to appreciate" and venture the guess that the test used did not measure appreciations below the fourth grade level. Whorley, using a problem in landscape architecture, judged the performance of her young subjects in terms of adult standards which involved many factors, such as utility and standard practices in landscape planning, as well as unity. It would seem that Walton's color test simply did not discriminate sharply beyond the twelfth year, but there is no reason to suppose that the ability to judge color harmonies does not develop beyond the twelfth year.

vestigation of the relationship between the scores made by college students on art judgment tests and their year in college. This study has not progressed far enough to report any conclusive data, but so far the results indicate that the yearly improvement is very small. Although this is in harmony with the findings of Siceloff as mentioned above, this aspect of art judgment is in need of much more study.

In summarizing these findings on the relation of art judgment to age, we find that: (1) the ability to judge art objects apparently develops at an early age; (2) the ability continues to develop until its possessor approaches maturity, but apparently does not increase significantly beyond that point unless special instruction is provided; (3) there are no experimental data to show that there is any optimum time for the development of this ability; and (4) students in college seem to have reached or are approaching the normal maturation of this ability under present conditions.

Of what importance are these data to the college teacher of art? First, we may assume that the development of this ability may be promoted at all age levels by the proper experience. As yet, there has been little clear-cut evidence concerning desirable methods and approaches, and all too frequently improved art judgment is expected to result from training in imitative drawing, studio courses in design, and lectures on art history or theory. In short, little attention has been given to developing this ability directly. Second, at the college level this ability is still developing, but at a snail's pace without art training, and only slightly faster with present methods of art instruction.

Of first rank importance, this generalization may be interpreted in two ways. Regarding our facts complacently, we may conclude that at college age the ability has very nearly reached its ultimate development, that there is little more to be accomplished in this direction. Inasmuch as there appears to be little further development, we need pay no attention to it. Or considering the complexity of art judgment, and the possibilities for increasingly deeper, wider, and more subtle appreciations of value, we may question whether or not the ability has reached its final limits. Is it not highly possible that the desensitizing, deadening processes which academic tradition and humdrum existence develop have brought about this condition? Given no further opportunity, or encouragement, or intelligent instruction students may stop far short of their potentialities. Certainly, the academic college curriculums and atmosphere have in the past provided little incentive for further development. In a later section of this paper, some data will be presented to show that improvement, even with a short training period, may occur. We may well ask where the limits of training would be found, if our students met many situations demanding sharp, wise judgments; became acquainted with facts and principles most useful in forming such judgments; and had the benefit of suggestions, discussions, and guidance after forming their own decisions. The work of many progressive art educators has demonstrated that creative ability may be fostered under stimulating conditions. There is great need for further experimentation to determine stimulating conditions for the development of art judgment.

III. *What is the Relation of Art Judgment to Tested Intelligence?*—Binet, in one of his early discussions of intelligence testing, named several capacities which he proposed to test in an effort to measure intelligence. Judging art objects was one of the tasks proposed. Today, the typical intelligence test has no items on art judgment. In fact, the data reported in Table I show that art judgment and tested intelligence bear almost no relationship to each other. Twenty-seven coefficients of correlation between measures of art judgment and intelligence, as reported by a number of investigators, range from — .14 to .34, the median coefficient being .18. From these data it seems that the ability to judge art shows practically no relationship to "tested intelligence."

How is the art educator to interpret and to use these findings? First, we might question the narrowness of the ability measured as "intelligence," particularly when Kelley reports the community of function between intelligence tests and reading tests as 92%, and between intelligence and arithmetic tests as 88% (26). Has our definition of intelligence been narrowed progressively until it includes little other than reading and arithmetic ability? Certainly, art judgment falls almost entirely outside these limits.

TABLE I

CORRELATION OF ART JUDGMENT VS. INTELLIGENCE

Art Test	Intelligence Test	No. of Subjects	Age	Correlation	Reference
Christensen Art Test	Thurstone Intelligence Test No. 4	80	College Women	.30 ± .07	Christensen
Christensen Art Test	Thurstone Intelligence Test No. 4	51	College Men	.26 ± .08	Christensen
Faulkner Architecture Discrimination Test	College Aptitude Test prepared for the Minnesota Association of Colleges	65	College	.34 ± .07	Faulkner
Faulkner Congruity Test	College Aptitude Test prepared for the Minnesota Association of Colleges	65	College	.19 ± .08	Faulkner
Faulkner Congruity Test	American Council on Education Psychological Examination	110	College	.28 ± .08	Faulkner
Faulkner Congruity Test	Terman Group Test of Mental Ability Form A	300	High School	.27 ± .04	Faulkner
Faulkner Painting Discrimination Test	College Aptitude Test Prepared for the Minnesota Association of Colleges	65	College	.06 ± .08	Faulkner
Faulkner Painting Discrimination Test	American Council on Education Psychological Examination	100	College	.26 ± .06	Faulkner
Faulkner Painting Discrimination Test	Terman Group Test of Mental Ability Form A	200	High School	.17 ± .05	Faulkner
Faulkner Sculpture Discrimination Test	College Aptitude Test prepared for the Minnesota Association of Colleges	65	College	.03 ± .08	Faulkner
Faulkner Sculpture Discrimination Test	American Council on Education Psychological Examination	100	College	.31 ± .06	Faulkner
Faulkner Sculpture Discrimination Test	Terman Group Test of Mental Ability Form A	200	High School	.06 ± .04	Faulkner
McAdory Art Test	Miller Analogies Intelligence Test	203	College	.10 ± .05	Eurich and Carroll
McAdory Art Test	College Aptitude Test prepared for the Minnesota Association of Colleges	65	College	—.01 ± .08	Faulkner
McAdory Art Test	College Aptitude Test prepared for the Minnesota Association of Colleges	45	College	.16 ± .01	Wentworth
Meier-Seashore Art Judgment Test	Miller Analogies Intelligence Test	674	College	.26 ± .02	Eurich and Carroll
Meier-Seashore Art Judgment Test	College Aptitude Test prepared for the Minnesota Association of Colleges	65	College	.00 ± .00	Faulkner
Meier-Seashore Art Judgment Test	Thorndike Intelligence Examination for High School Graduates	212	College	.08 ± .06	Farnsworth and Misumi
Meier- Seashore Art Judgment Test	McCall Multi-Mental Scale	238	Sixth Grade	.013	Speer
Meier-Seashore Art Judgment Test	Thorndike Intelligence Examination for High School Graduates	53	College	—.01 ± .09	Meier
Meier-Seashore Art Judgment Test	Freshman Examination, University of Iowa	60	College	.28 ± .08	Meier
Meier-Seashore Art Judgment Test	College Aptitude Test prepared for the Minnesota Association of Colleges	79	College	.24 ± .07	Wentworth
Minnesota House Design and Furnishing Test	College Aptitude Test prepared for the Minnesota Association of Colleges	65	College	—.14 ± .08	Faulkner
Owatonna Art Judgment Test	College Aptitude Test prepared for the Minnesota Association of Colleges	65	College	.001 ± .08	Faulkner
Owatonna Art Judgment Test	American Council on Education Psychological Examination	100	College	.18 ± .06	Faulkner
Owatonna Art Judgment Test	Terman Group Test of Mental Ability Form A	285	High school	.27 ± .04	Faulkner
Room Test	College Aptitude Test prepared for the Minnesota Association of Colleges	74	College	.21 ± .07	Wentworth

Second, we know from these data that academic tested intelligence is of almost no value in predicting the ability to judge art objects, or in predicting success in courses emphasizing this activity. Faculty advisors may well heed this point, since it does not coincide with the assumption often held that a high "tested intelligence" is essential for success in all lines of college work. Eurich and Carroll (10) have provided further understanding of this relationship by showing that although a high intelligence precludes the possibility of making a low score on the McAdory Art Test, a low intelligence does not preclude the possibility of making a relatively high score on that test. In this sense only is academic tested intelligence of predictive value in regard to art judgment. The relationship of intelligence to creative ability is, of course, another matter.

Third, this low relationship raises questions of efficient methods of improving art judgment. The lecture and reading method of teaching, while well suited to those students possessing high academic tested intelligence, is clearly not best adapted to those whose abilities may be in other directions. The problem of improving an ability which has little relationship to academic tested intelligence is one which needs thorough consideration. Laboratory participation is one, but only one, alternative method to the lecture-reading combination. Discussions, field trips, and participative activities requiring little or no technical ability offer possibilities.

But above all, this lack of relationships between ability in judging art and academic tested intelligence shows that effective education can and must go well beyond narrow, academic limits. Useful as tested intelligence is in predicting college success, it predicts success only as long as college courses are narrowly intellectual. Real life introduces many other factors, and vital education must give them due consideration. In the past we have limited the development of large numbers of students by adhering to narrow concepts of what a college education should be. Although we have little statistical evidence, there are many indications that student development may occur in many directions, not being limited to one area. There is need for educators to respond to these possibilities.

IV. *What is the Relation of Art Judgment to Training or Selection?*—Do those students who have had more training have superior ability to evaluate art objects? If so, what are the roles of training and selection in this development?

In answer to the first question there are substantial data available. Meier (22), McAdory (21, 25), and Christensen (5) report statistics showing that the average performance on their respective tests indicates an increase in proportion to the amount of training the subjects have had. Christensen also demonstrated that the scores on his test were raised significantly after one year's art instruction. Christensen further showed that in college art faculties, those members holding higher positions agreed more closely, i.e. had superior judging ability, or had come to conform more closely than did those of lesser rank. White (34) found a definite increase of scores on the Minnesota House Design and House Furnishing Test with groups of junior high school, senior high school, and college students. She believes that these differences are due to instruction rather than to increased maturity, because high school pupils having definitely superior instruction were able to equal the performance of college students. Wentworth (33) found a definite increase, with additional training in related arts, in the mean scores of college groups on the Meier–Seashore test, the McAdory test, and her own Room Test. However, with the exception of an initial spurt accompanying the first quarter's instruction in related arts, the Room Test was the only one which was able to measure successive gains in art judgment. This may be interpreted either as an indication that the Meier–Seashore and McAdory tests measure abilities relatively stubborn to training, or that the training offered did not affect the ability measured.

Faulkner (13) studied this problem in three ways, the first of which was a comparison of the performance of college art majors and non-art majors on eight tests of art judgment. On five of these eight tests the difference between groups gave critical ratios of two or more. A second method of analyzing the data was by the computation of bi-serial coefficients, obtained by dividing the students into two groups, one composed of students having taken more than three

one-quarter art courses, the other of those having taken fewer than three, and correlating their scores on eight art judgment tests. These coefficients ranged from .006 to .675, the median being .47. These two analyses indicate that there is a positive relationship between the number of art courses taken and the scores on art judgment tests, but give no clues concerning the basis of this relationship. A third method of studying this relationship was the administration of the same test before and after a period of art instruction, the results of which are shown in Table II.

In these four studies the chances are 9465, 9880, 9590, and 9999 out of 10,000 that real improvement has taken place.

In summary: First, there is a definite relationship between art judgment and the amount of art training. Although this relationship may be low, it is always positive and is statistically significant in a number of studies. Second, art judgment may be improved at the college level, even though there is some evidence to indicate that the ability has almost reached full maturity. Third, some of the tests, such as the Room Test, measure abilities apparently more readily trained than those measured by other tests, although this is a function of the relationship between the actual teaching and the ability measured. Fourth, as yet there is no conclusive proof that the increases reported above are the result of training rather than original nature and selection, but the significant increases during short training periods suggest that training is an important factor.

For the art educator this holds great promise, indicating as it does that art judgment may be improved through instruction. We need not approach the matter with a hopeless attitude, as do many who feel that good taste and discerning judgment are entirely the product of heredity or of sporadic genius. Although in all probability native ability plays a significant role, it appears that native ability alone is not responsible for the degree to which this ability is present. If the ability to judge art products wisely is important in rich living, and if it is possible to develop this ability through training, far more attention should be paid such ability in our educational program. Historical art courses, often amounting to little more than catalogues of art long dead, are seldom concerned with this need.

V. *Is There a "General Ability to Judge Art Objects"?*—Does it matter which art products are studied? Can we not learn to judge art "in general"? The question of general vs. specific abilities has arisen in many fields of education, as well it might, for the position adopted on this issue exerts a powerful influence on teaching procedures. Much college, and public school, art teaching is based on the assumption that the ability to judge art is a general trait, and that if students are given practice in one or a few fields of art objects, their judgments in other fields will be positively affected. Often we hear, "He has excellent judgment in art," as though the person mentioned were equally competent in all art fields. And yet most of us have acquaintances who have excellent taste in painting, for example, and very poorly developed judgment in sculpture or architecture. In fact, this is true of many professional painters. Of great significance in selecting course content and experiences, new understanding on this issue is afforded by recent experimental evidence.

Christensen (5) observed that certain sections of his test differentiated artists from general students more sharply than did others. Thus, the sections on painting, archi-

TABLE II

MEAN SCORES ON ART JUDGMENT TESTS BEFORE AND AFTER ART INSTRUCTION

Art Test	Number of Subjects	Period of Instruction	Means		C.R.
Meier–Seashore Art Judgment Test	19	6 weeks	1st Testing	96.78	1.93
			2nd Testing	100.80	
Meier–Seashore Art Judgment Test	53	10 weeks	1st Testing	95.65	3.06
			2nd Testing	100.65	
Faulkner Congruity Test	67	11 weeks	1st Testing	29.09	2.05
			2nd Testing	31.08	
Owatonna Art Judgment Test	55	11 weeks	1st Testing	47.05	5.16
			2nd Testing	53.83	

tecture, and sculpture gave larger group differences than did industrial design and abstract design. Explaining this as a function of the relative complexity of the art field being judged, Christensen did not compare the relative achievement of individuals on different sections of his test. Because the McAdory Art Test (21) was constructed around three types of art elements—Form, Notan*, and Color—Siceloff (25) was able to investigate coefficients of correlation among these three types of subject matter, and found that "with an infinitely large number of plates, we may expect the median correlation of Form with Notan to be .72, that of Form with Color to be .75, and that of Notan with Color to be .77." These coefficients indicate that the judgment of Form, Notan, and Color—common aspects of all art objects —are closely related.

Another method of investigating the specificity of art judgment is to compare the performance of individuals on different art judgment tests. Table III shows the results of several such studies. Thirty-eight coefficients of correlation, reported in Table III, range from —.17 to .68, with a median of .33. These data suggest that these ten tests of art judgment measure abilities not highly related, from which we may infer that there is no single factor of "art judgment."

Interpreting and applying these findings, the evidence indicates: First, that art judgment is not a single unitary ability. Rather it seems to be a function of the field of art being judged. This confirms such observations as the fact that a good judge of painting may not necessarily be a good judge of architecture, and places serious doubt on the existence of a general factor of art judgment. Second, if there does not seem to be a general factor of art judgment, many art teaching practices are in question. It would seem that teaching should be closely related to the type of activities which it is intended to influence. We may well question how much value a study of abstract design has as an aid to judging sculpture or houses. We may question the typical practice of studying ancient art as the sole or principal basis for judging contemporary art expressions. Third, many careful studies of the art activities of children and adults of today need to be made as one basis for curriculum building. As long as we assume that the ability to evaluate art objects is general and operates freely in all fields of art, the range and type of experiences in the school program do not matter a great deal, provided they are vital to the pupils. If, however, the ability to judge painting is not closely related to the ability to judge architecture, to use one example, it becomes necessary to study specifically each art field in which we expect to develop competent judgment.

* Dark and light pattern.

Course Content and Experiences

How shall we determine what course content and experiences will be most useful to the general student? Can we depend on the student to make wise choices? Of what importance is course content? Will one type be as useful as another?

Differences of opinion on this issue often divide educators into two camps. Some emphasize the value of "vital experiences" whether they be in the field of painting, pottery, or dress design. They claim that the one essential is student interest, and that with student interest it matters little what course content is chosen. They seek to lead the student from one experience to another, giving greater heed to the intensity and vividness of the activity than to the direction in which it is leading. All fields of art as such are equal in importance, if they hold possibilities for arousing student interest. If one field of art does not evoke interest, it finds small place in a program.

Other educators, keeping an eye to the future, as well as on the present and past, believe that some activities are more significant than others, that some fields of art are more important because they develop skills, knowledge, and attitudes, not only stimulating to children but useful in adult life. If art judgment is specifically related to the type of art object being judged, we must decide between (1) depending on transfer or generalization to occur, or (2) selecting course activities closely related to those occurring in everyday life. If we choose to follow the latter course, it is necessary to know in some detail what such activities are.

Two recent investigations are conducting studies of child, adolescent, and adult needs and interests as a basis for curriculum building. The Owatonna Art Education Project (38), organized to develop a functional art

TABLE III

CORRELATIONS BETWEEN TESTS OF ART JUDGMENT

Art Tests	Number of Subjects	Age Level	Correlation	Reference
Christensen Art Test				
vs. Meier-Seashore	167	Sixth Grade	.25 ± .05	Speer
vs. McAdory	60	College	.55 ± .06	Kinter
vs. McAdory	59	College	.68 ± .05	McAdory
McAdory Art Test				
vs. Room Test	299	College	.35 ± .03	Wentworth
vs. Minnesota House	65	College	.21 ± .08	Faulkner
Meier-Seashore Art Judgment Test				
vs. McAdory	111	College	.27 ± .06	Eurich and Carroll
vs. McAdory	65	College	.37 ± .07	Faulkner
vs. McAdory	299	College	.31 ± .04	Wentworth
vs. Room Test	299	College	.22 ± .04	Wentworth
vs. Minnesota House	65	College	.21 ± .08	Faulkner
Owatonna Art Judgment Test				
vs. Congruity	65	College	.35 ± .07	Faulkner
vs. Painting	65	College	.54 ± .06	Faulkner
vs. Sculpture	65	College	.53 ± .06	Faulkner
vs. Architecture	65	College	.38 ± .07	Faulkner
vs. Meier-Seashore	65	College	.30 ± .08	Faulkner
vs. McAdory	65	College	.25 ± .08	Faulkner
vs. Minnesota House	65	College	.01 ± .08	Faulkner
Congruity Test				
vs. Painting	65	College	.23 ± .08	Faulkner
vs. Sculpture	65	College	.31 ± .08	Faulkner
vs. Architecture	65	College	.51 ± .06	Faulkner
vs. Meier-Seashore	65	College	.33 ± .08	Faulkner
vs. McAdory	65	College	.19 ± .08	Faulkner
vs. Minnesota House	65	College	.33 ± .08	Faulkner
Painting Discrimination Test				
vs. Sculpture	65	College	.56 ± .06	Faulkner
vs. Architecture	65	College	.38 ± .07	Faulkner
vs. Meier-Seashore	65	College	.22 ± .08	Faulkner
vs. McAdory	65	College	.06 ± .08	Faulkner
vs. Minnesota House	65	College	.49 ± .05	Faulkner
Sculpture Discrimination Test				
vs. Architecture	65	College	.65 ± .05	Faulkner
vs. Meier-Seashore	65	College	.34 ± .07	Faulkner
vs. McAdory	65	College	.32 ± .08	Faulkner
vs. Minnesota House	65	College	.31 ± .08	Faulkner
Architecture Discrimination Test				
vs. Meier-Seashore	65	College	.36 ± .07	Faulkner
vs. McAdory	65	College	.25 ± .08	Faulkner
vs. Minnesota House	65	College	.39 ± .07	Faulkner
Number of correlations			38	
Range			—.17 to .68	
Median			.33	

program for the public school system, made a survey of community art needs and interests as the first step. Choosing a typical, midwestern community of medium size, several staff members studied the uses of art in all areas of life such as the home, the community, commerce, and industry. In general the findings indicate that "useful arts" play a far more important role in the lives of the citizens than do the "fine arts" of painting and sculpture. Architecture, occupying a position midway between "useful" and "fine," was a factor in many activities. Equally definite was the finding that the arts of the past have relatively little influence on, and hold little interest for, the citizens of contemporary society. When participation in art activities was investigated, it was found that most of it grew directly from practical situations and was the type which required little technical skill, but considerable ability to judge, select, and arrange for a successful

solution. Decorating homes, arranging displays in stores, and gardening were common activities; painting, sculpturing, or craftwork were seldom practiced. Whether this condition is desirable is another question, but the survey shows that it does exist.

The General College Personnel Research Studies (9) were set up to investigate the abilities, needs, and interests of students now in college, as well as those who attended college some years ago. As yet, the data are not completely analyzed, but a few trends referring directly to the arts are worth mentioning. One section of the Adult Study presented a number of paired comparisons. One item in each pair was a statement of abilities or facts, as developed and covered in the course content of a typical historical introduction to art, while the other was from the course content of the General College art courses. The subjects were asked to check the item about which they would rather know more. Both graduates and undergraduates expressed their interests as shown by the percentages following:

	Graduates	Non-Graduates
(1) Design of public buildings in community or	83%	79%
Design of public buildings in ancient Rome	14%	18%
(2) How to distinguish good from poor present-day houses, or	89%	91%
How to distinguish Greek from Roman architecture	8%	6%
(3) Design and weave of contemporary textiles, or	77%	73%
History of French tapestries	19%	23%

The above paired items have been criticized as "loaded." In reality they are merely paired statements of situations that exist in typical introductory college art courses in contrast to real life situations. These are representative of the choices which the teacher of art must make as a basis for building his art experiences.

As with the findings of the Owatonna Art Education Project, there is every indication of far greater interest in the contemporary, near-at-hand art forms than in those remote in time, space, or meaning. Many of the citizens of Owatonna expressed the wish that their public school training had given them more useful art skills, rather than unusable skills in imitative drawing and painting. The General College studies also show the need for the consideration of real problems. The general education movement is placing new emphasis on school activities and experiences directly related to the needs of citizens in contemporary society, and, therefore, finds its source materials in such surveys as these conducted by the University of Minnesota. Education is conceived of as facing and solving problems present in our own environment. Course activities in art, as well as in other fields, should provide first-hand contacts with contemporary realities.

Today's educational trends, particularly those in the choice and organization of course content, point in three directions. The traditionalist draws heavily on the past, assuming that the past must be studied before the present, and that the study of the past is the best preparation for the present and future. The extreme progressive puts full trust in the inspiration of the present, believing that if sufficient interest is aroused in almost any activity, the intensity and vitality of these experiences will give them carry-over value for the future. A third approach, which we may tentatively call that of realism, has its feet in the present, its eyes on the future, and its heritage as far back into the past as is conducive to intelligent, progressive thinking and doing. Fully aware of the value of vital experiences closely related to present impulses and motives, the realistic educator, nevertheless, does not allow this interest to obscure situations which will arise in the future. He is equally aware of the great heritage of the past experience of the human race, and feels free to draw on it as often and much as is necessary. He differs from the traditionalist in that he studies the past when a need arises in the present; he differs from the extreme progressive in that he does not allow present stimulations to cause him to forget the future. In short, he treats the student as a human being, alive today, and also expecting to live tomorrow.

If art judgment is an activity specifically related to the objects being judged, the realistic educator needs to know not only the present status of the student, but his probable future status. Although it may seem foolish to try to predict the future, it is more foolish

to ignore it. Our best chance of providing the student with equipment for rich living is to build course content in relation not only to his immediate interests and needs, but in relation to those of the future. Specifically, this means that the course content should include those art fields which are most important in life today. For example, if most persons do and will purchase (and judge) furniture for their homes, a general arts course should give this matter attention. If the judgment of color schemes in clothing is important, this should be included. There is no evidence to indicate that a study of ancient architecture and sculpture will materially aid in either of these activities. Indeed we have considerable evidence indicating that it will not do so.

Course Methods

At present there is little statistical evidence concerning efficient methods of art instruction. Christensen (5) reports a study in which the increases in art judgment of two groups, one taught through lectures and discussions, and the other through laboratory participation, were compared. The lecture-discussion group increased in the ability to judge art considerably more than did the participation group. Clifton Gayne, in an unpublished study of the development of judgment of paintings at the sixth grade level, found a direct relationship between the type of discussion and increased ability. The group which limited its discussion to story-telling, subject-matter aspects of painting plus biographical material on the artists (the typical subject-matter of art history) made less progress than the group which discussed the expressive, compositional, and technical sides of painting.

In the General College Art Laboratory, University of Minnesota, several observations, none of which, however, is statistically provable, have been made. First, the lecture method is well suited to giving information, to the development of attitudes, and to showing the students what the instructor thinks is good or poor art; in other words, to providing a basis for art judgments. It does not offer many opportunities for the student to judge art for himself. Second, discussions in the presence of art objects provide a good setting for students to make their own judgments under the guidance of the instructor. The discussions may center around any field of art from architecture to dinnerware, painting to packaging, thus permitting a wide range of art contacts. No technical ability, other than the ability to express ideas in words, is required. Third, laboratory participation is perhaps the most individual, and most clumsy, of the methods; but at the same time it may provide the student with the most intense experiences. The student is required to make many judgments as his work progresses, but these do not occur as rapidly as in discussions where different art objects may be viewed in rapid succession. Furthermore, laboratory work requires some technical ability in order to be worthwhile to the student as an educative process, and there is always the difficulty of neglecting the judgments in the interests of acquiring technical ability. To borrow an example from a related field, we need only cite the piano lessons suffered by countless youngsters without appreciable effect on their judgment of music. In not a few cases such lessons have actually decreased enjoyment of music and, although this is the result of poor teaching, the fact remains that participation activities have limitations.

However, there is a possibility of realizing the advantages from all of these methods, provided the laboratory work is organized wisely. Thus, although the primary activity may be in direct working with materials, exhibitions of related work can be placed on the walls. Current books and magazines and files of illustrative materials can be made readily available. And, most important, the students can be encouraged to exchange ideas freely with their fellow students and instructors while working on a problem. Each student can pursue a problem closely related to his personal interests and abilities of the moment, and yet with wise guidance be led to generalizations and judgments not only far beyond the narrow confines of his own work, but of value to him in later life. Furthermore, he may profit greatly from what other members of the class are doing. He may paint while his neighbor designs a house. Do paintings and houses have anything in common? Can they be judged in the same terms? Should certain sections of the house be designed specifically for paintings? Should the painting be related to the house? These are samples of the hundreds of questions and

issues which will arise naturally *with proper stimulation*. However, this situation differs markedly from the typical drawing, painting, or design class where all students work on more or less identical problems without once realizing the relationship of their work to that of their fellow students in that same class room, or in other departments of the University, or to similar art products and processes in the world at large. It differs equally sharply from the class room in which each student is entirely wrapped up in his own problem. Laboratory work may be directed to stimulate increased growth in judgment and appreciation in many directions, or it may turn attention only to increasingly narrow concern with immediate problems.

From the foregoing discussion it seems clear that the question is not, "Which method is best?" Rather, it is "How can we best utilize the advantages inherent in each method?" For one thing, there is no such thing as "the lecture method." Lectures differ as widely as the people giving them. Lectures can be vital, stimulating experiences, or they can be dead, dry recitals of facts. Similarly, laboratory participation can lead the student out from his own problems to a wide variety of things, or it can center his attention on technical trivialities.

Not only do the methods vary in themselves, but they vary in the effectiveness with which they influence students. The investigations in individual differences give ample ground for believing that some students may profit most from one method, others from another approach. Whereas a series of lectures may mean relatively little to a student who "thinks" in terms of colors and textures, the same series may meet directly the needs of the student who thinks entirely in words. This latter student may suffer great psychological agony when faced with clay and paint. We may well ask how anyone even vaguely familiar with individual differences can say, "Participation is the best, or only, way to develop appreciation and judgment," or in contrast, "Fooling around with clay and paint is not worthy of college credit." However, both of these ideas are often expressed.

Summary

From the experimental data cited we may safely conclude that: (1) The ability to judge art objects is distributed in a continuous, not discrete, manner. All persons have more or less ability to judge art, and there is no sharp distinction between those who "can" and those who "cannot." (2) There is a definite relation between the ability to judge art objects and chronological age up to approximately 18. Beyond that age improvement seems to occur only along with special training. However, there is no evidence clearly defining the relative importance of training and selection in this improvement, but there is some indication that training is in part responsible. (3) There is a very low positive correlation between art judgment and tested intelligence, but the relationship is so low that they seem to have almost nothing in common. This demonstrates the narrowness of our concept of "tested intelligence," and also leads to the assumption that at least some students who have difficulty with academic subjects may profit from a study of art. (4) There is a positive relationship between the amount of art training and the ability to judge art objects. There are no data to prove conclusively whether this is a casual or causal relationship. (5) There is considerable evidence indicating a high degree of specificity in art judgment, that is, that the ability to judge one field of art well does not necessarily accompany the ability to judge another field equally well. This finding should have conspicuous influence on the organization of course content and experiences. (6) Studies of the art needs of citizens in contemporary society indicate major interest in and need for understanding of contemporary, useful manifestations of the arts. This finding is in marked contrast to the assumptions underlying most courses of study in art. (7) The value of any method of art instruction depends less on the method itself than on the details of how that method is used. The lecture method in and by itself is neither good nor bad. Individual needs and capacities of students suggest further that there is no "one best method" of developing art judgment.

With such data available, one may well question the efficiency of much art teaching intended for the general student. Our whole philosophy of art teaching has developed without benefit of sound educational research. Speculation and anecdotes, not rigorous scientific thinking, have obscured many issues. While this paper brings together some

of the results of research, it also shows how much remains to be done before we will adequately understand the basic factors and conditions of art activities in the program of general education. We know that the academic approach is faulty, and are beginning an approach more in harmony with known facts and observed needs and interests. Although considerable data are available, there is need to know much more, since the most effective art teaching will be based on sound educational research.

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A MENTAL HYGIENE APPROACH TO SPEECH INSTRUCTION AS A MEANS TO PERSONAL ADJUSTMENT[1]

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Can a beginning speech course in which a mental hygiene approach is employed produce significant changes in personal adjustment? In an attempt to answer this question, an experiment was carried out with eight classes in beginning speech at San Jose State College in California during the 1938–1939 school year.

The experimental group was composed equally of boys and girls, a total of 191 students, with freshmen and sophomores each constituting two-fifths of the entire group. All classes were taught by the writer. The mental hygiene approach employed had been developed by him over a period of years to aid in reducing tensions and to increase general facility in the speaking situation. The core of the approach was the conscious utilization of "group therapy"[2] possibilities inherent in the speaking situation. The natural elements of individual participation, mutual exchange of ideas, and group evaluation and criticism lent themselves admirably to this technique.

Tests were administered at the beginning and end of the course, with approximately eleven weeks intervening. A *Personal-Social Inventory*[3] and a *Social Insight Questionnaire*[4] were taken by all of the students participating. In the fall quarter only, a mental hygiene information test[5] and a *Personality Reactionaire*[6] were given. During winter and spring quarters, the Bell *Adjustment Inventory*[7] was used. In the spring quarter only, the Bernreuter *Personality Inventory*[8] was employed as a control factor.

Controls consisted of: (1) a comparison of changes in test scores during the period between college entrance and the opening of this course with those occurring during the experimental period; (2) a comparison of this study with Rose's measurement of personality changes during speech training in nine mid-western colleges;[8a] (3) a comparison of changes in mental hygiene information with self-ratings; and (4) a comparison of changes in habitual and attitudinal type responses.

Initial and final test scores were subjected to statistical analysis by quarters and for the group as a whole, by classes, by sexes, and by quartiles. An item break-down was made for two of the tests.

DESCRIPTION OF THE COURSE

Initial discussion concerned the relationship between speech and personality. Two periods were spent in "class conversation" concerning the development of personality, with particular emphasis upon early home and environmental influences. The first talk of the course was a psychological autobiography by each of the students, the instructor leading off with a brief analysis of his own childhood and maturing experiences, using as much humor and objectivity as possible. Surprising candor was displayed in the talks given and the effect upon the class seemed to be one of increased rapport and understanding.

This was followed by regular speech work: recording of the voice with suggestions for improvement, a pantomime, a demonstration, and some time spent in articulation, voice, and breathing exercises.

Two short talks, preceded by class discussion of defense mechanisms,[9] were then as-

[1] Abstract of Ph.D. dissertation in Educational Psychology, University of California, 1940.

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[2] i.e., adjustment values that accrue to the individual from satisfying group experiences.

[3] Lawrence W. Miller and Elwood Murray, *The Personal-Social Adjustment Inventory*. Denver: University of Denver, 1938.

[4] A test constructed by the writer for use in this experiment.

[5] Also constructed by the writer for use in this investigation.

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[9] Based upon L. F. Shaffer, *Psychology of Adjustment*. Boston: Houghton Mifflin Co., 1936.

signed. The first was to include an example of identification and one of compensation; the second, two examples of rationalization, one of which was to deal with projection.

At this point the reading of dialogue was initiated with emphasis upon "letting go" and achieving vocal and character differentiation. A second dialogue reading, after constructive criticism by the class, was recorded.

The final talk of a psychological nature was next presented. Students were asked to describe a typical ego-centric person, pointing out possible causes of the exaggerated egocentricity and present and probable future costs.

The work thus far described was covered in approximately the first six weeks. The rest of the course included a series of three talks on a single subject, each talk representing a stage in the problem-solving process. This was followed by an impromptu speech which was recorded. The three recordings made during the course were then played back individually, progress or lack of it noted, and suggestions made for further speech improvement. For the final assignment, classes were mixed and dinners held at a down-town restaurant. Each student was introduced by a classmate and gave an after-dinner speech. Each also, at some time during the evening, introduced another classmate.

The importance of criticism as objective evaluation was constantly stressed during the course. An attempt was made to find something favorable in every piece of work and to be constructive in pointing out weaknesses. Criticism served as a creative and valuable tool; by its use, speech theory and techniques were made concrete in specific situations. As the course progressed, members of the class became increasingly able to make concrete applications of theory for themselves and to offer helpful suggestions to other students.

During the fall quarter, interviews were restricted to comments regarding voice and articulation improvement. During the winter and spring quarters, as a differentiating control factor in the study, two interviews of a more personal nature were added to the procedure. Every effort was made to make these constructive and helpful. The instructor sought to achieve at once an attitude of sympathetic understanding and objective detachment, to attain flexibility and to treat each student as an individual. He did not assume problems where none was indicated. Suggestive leads, when given, were followed as far as the student wished to go, but there was no attempt to pry into personal affairs.

Speech diagnosis sheets and initial test results were studied just prior to each interview. Where speech problems were definitely related to personality difficulties, this formed a natural approach. Positive and confident attitudes were stressed, and suggestions made for improving social and emotional adjustment.

Tests and Results

Personal-Social Adjustment Inventory

This inventory purports to measure egocentric introversion, objective introversion, egocentric extroversion, and objective extroversion. By combining egocentric and introvert scores of the above trait measures, scores may also be computed for egocentricity and introversion.

Results, based on 191 cases, may be cited briefly:

(1) There was an increase of objective introversion and objective extroversion, the critical ratios being 3.69 and 6.85 respectively.

(2) There were decreases in egocentric introversion, egocentricity, and introversion as indicated by critical ratios of 8.34, 7.46, and 6.38 respectively.

(3) There was a 2.15 critical ratio reduction in egocentric extroversion indicating "definite probability" of decrease here also.

It may be said, therefore, that there were significant changes from egocentric introversion to objective extroversion, and in a lesser degree to objective introversion, as measured by the *Personal-Social Adjustment Inventory*.

Social Insight Questionnaire

The *Social Insight Questionnaire* is designed to throw light upon the basic assumptions of students with reference to adjustment areas, and to discover what relationship exists between their "ideal" and the way in which they rate themselves and "most people" on various items. From differences in these three ratings four indexes were derived: *Most People vs. My Ideal, Self-Criticism, Superiority-Inferiority, Feeling of Difference.* With the aid of a key representing the pooled judgment of a group of psychologists, two additional indexes were derived, namely,

My Ideal vs. Psychologists' Ideal and *My Case vs. Psychologists' Ideal.*

On the basis of 185 cases, the following statements are in order:

(1) Students appeared to become more critical of "Most People" by a critical ratio of 5.80. This does not represent the development of anti-social attitudes (their rating of "Most People" improved somewhat), but indicates rather that social attitudes are more stable and did not change as much as the students' "Ideal."

(2) They moved themselves slightly nearer their ideal (critical ratio 2.63), improving their own rating more than that for "Most People." As a result, the *Feeling of Difference* score was slightly increased by a critical ratio of 2.90. This tendency was, however, much more clearly indicated in the *Superiority-Inferiority* score, which showed students moving themselves significantly nearer their ideal than they moved "Most People," the critical ratio of the difference being 7.82.

(3) The students' "Ideal" moved toward the "Psychologists' Ideal" by the highly significant critical ratio of 8.20. This indicates changes in basic assumptions and mental hygiene attitudes, and should be indicative of definite adjustment improvement.

(4) Also highly significant was the movement of "My Case" toward the "Psychologists' Ideal" by a critical ratio of 6.76.

It may thus be said that significant changes were registered on four of the six indexes on the *Social Insight Questionnaire,* and "probable changes" on the other two.

Bell Adjustment Inventory

This test purportedly measures home adjustment, health adjustment, social adjustment, and emotional adjustment. "Totals" of these four scores have been found to correlate .94 with the Thurstone *Personality Schedule.*

The test was administered during winter and spring quarters to approximately 100 students. Results may be stated as follows:

(1) There was an almost statistically significant improvement in home adjustment, the critical ratio being 2.87.

(2) Health adjustment was probably improved slightly, the critical ratio being 1.86.

(3) Social adjustment improved a significant amount, as indicated by a critical ratio of 6.10.

(4) Emotional adjustment improved significantly, the critical ratio being 5.78.

(5) Combined social and emotional adjustment scores yielded a 7.67 improvement. When home adjustment and health adjustment scores were added, this critical ratio was lowered to 6.84, which is, however, a highly significant change.

Briefly, therefore, it may be stated that social adjustment and emotional adjustment were significantly improved, home adjustment almost certainly so, and that even the health adjustment scores suggest some improvement.

Control Factors

The first control factor was the Bernreuter *Personality Inventory* which had been taken by each student at the time of entering college and was administered again during this experiment. It was given to approximately 50 students at the beginning and end of the spring quarter. Freshmen had thus been in college six months, sophomores a year and six months, etc. The time elapsing between the college entrance test and the initial test of this experimental period, averaging almost exactly one year for the 50 students, constituted the control period.

Results for the control period show that no statistically significant changes occurred on any of the six traits measured by the Bernreuter and Flanagan keys, the highest critical ratio being 1.59 for B1–N (neuroticism). In contrast, during the eleven weeks intervening between initial and final tests of the experimental period, statistically significant changes occurred in five of the six traits measured. Neuroticism, introversion, and lack of confidence decreased by critical ratios of 6.39, 5.15, and 6.57 respectively. Self-sufficiency and dominance increased by critical ratios of 3.33 and 4.14 respectively. Unsociability showed no measurable change.

The second control factor lay in a comparison of the gains registered during this experimental period of eleven weeks with changes found in the study by Rose. In his study, the Bernreuter *Personality Inventory* was administered to 291 students at the beginning and end of semester courses in speech fundamentals, as taught in nine different mid-western colleges and universities. Rose found significant changes in B1–N (neuroticism) and B4–D (dominance) scores; mean raw score changes amounted to 14.52 and 13.40 respectively, as compared

with 44.25 and 27.36 changes for the same traits during the San Jose experiment. Rose found only a 1.03 increase in the self-sufficiency score, as compared with 18.15 for the present study. Neither found any measurable change in unsociability.

The third control factor dealt with the problem of knowledge of correct answers vs. self-evaluation. This was approached in two ways. The first approach consisted of a mental-hygiene information test of 80 true-false questions administered during the fall quarter to approximately 90 students. The mean scores for the group improved from 37.45 on the initial test to 46.60 on the final test. The critical ratio of this difference is 10.1.

The second approach consisted of correlations between indexes. The correlation between *My Ideal vs. Psychologists' Ideal,* which should represent knowledge, and *My Case vs. Psychologists' Ideal,* representing self-rating, was surprisingly low (only .31 on the initial test and .25 on the second). The correlation between intelligence scores and these same two indexes showed agreement of .46 with the students' "Ideal," but only .07 with "My Case." Further, an average critical ratio of improvement for the two informational indexes, the mental hygiene information test and *My Ideal vs. Psychologists' Ideal,* was 9.15 as compared with an average of 7.24 for the four largest of all of the self-ratings.

A reliable difference would seem to exist, therefore, between knowledge of best answers and self-ratings. Gains in self-ratings, although of course related to information, should not be attributed merely to gains in knowledge.

The fourth control factor was the *Health Personality Reactionaire,* purporting to measure habitual as opposed to attitudinal behavior. Responses could therefore be expected to change little; actually, there was only a 1.7 change of mean, the critical ratio being 2.16. This test was used during the fall quarter only.

Evaluation of the Interview

Interviews during the fall quarter were limited to voice and articulation problems as such. During the winter and spring quarters two interviews dealing directly with relevant personality problems of the individual were added to the procedure.

Of the six traits measured by the *Personal-Social Adjustment Inventory,* five showed significant gains in favor of the interviewed group. Only in introversion, which both groups reduced by approximately a critical ratio of five, were the groups equal.

Of the six measures on the *Social Insight Questionnaire,* only two showed significant gains in favor of the interviewed, with one other showing a probable difference. The interviewed improved their rating of "Most People" in relation to their own "Ideal" more than did the non-interviewed, the critical ratio being 3.26. The greatest difference registered between the two groups, however, was on the *My Case vs. Psychologists' Ideal* index, the interviewed group moving themselves toward the "Psychologists' Ideal" by a critical ratio of 8.41, as compared with 1.64 for the non-interviewed group. The critical ratio of the difference in gain was 4.82. The interviewed group also moved slightly more toward its own "Ideal" than did the non-interviewed group, the critical ratio of the difference being 2.35.

Changes by Sex, Class, and Quarter Groups

Finally, what differences existed between sexes, classes, and quarter groups?

Sex differences, as registered by the *Personal-Social Adjustment Inventory,* showed the girls to be slightly more objective and introvert than the boys, who appear by comparison to be more egocentric and extrovert.

On the *Social Insight Questionnaire* the girls' responses were slightly more critical of both themselves and others than were the boys. Their basic assumptions, as represented by the *My Ideal vs. Psychologists' Ideal* index, appear sounder, since their ideal more nearly approximated that of the psychologists' than did the boys, the critical ratio of the difference being 4.43.

Both sexes showed almost identical degrees of improvement.

Class differences were not conclusive, either in terms of initial differences in adjustment, or in gains registered.

Quartile differences, however, were striking. These data were prepared as an answer to the question of whether the procedures employed in this study would be psychologically difficult for the more poorly adjusted students, resulting in even greater maladjustment. Six trait measures most likely to show any such tendency were selected—

egocentric introversion and egocentricity on the *Personal-Social Adjustment Inventory; Superiority-Inferiority, My Ideal vs. Psychologists' Ideal,* and *My Case vs. Psychologists' Ideal* on the *Social Insight Questionnaire;* and the total scores for the Bell *Adjustment Inventory*. In every case the more poorly adjusted quarter showed the greatest improvement, the next most poorly adjusted the next greatest gain, and so on. On the average for the six indexes used, gains registered by the most poorly adjusted quarter are approximately twelve times as great as the improvement of the best adjusted quarter.

The conclusion seems inescapable that those who most needed to improve their personal and social adjustment showed the greatest desirable change, and others in proportion. There is no evidence that the experiment had an undesirable effect upon any group, least of all on those who might have been expected to find the situation most difficult.

Conclusions

The first major question in this experiment was: "Is it possible to measure personality changes apparently resulting from a beginning speech course in which a mental hygiene approach was used?" Of the six tests employed, all registered at least suggestive changes. On the basis, then, of a wide variety of tests with different types of response, one may say that, in so far as personality tests have validity, changes occurred and at least some aspects of improvement can be measured.

The second question was: "How significant are such changes?" Of the twenty-four trait scores and indexes found in the six test instruments, seventeen registered statistically significant gains in adjustment ranging from three to ten critical ratio; five registered probable gain, critical ratios ranging from two to three; and only two registered changes amounting to less than a critical ratio of two. Again, to the degree that personality tests are valid measuring instruments, it is evident that a speech course employing a mental hygiene approach can produce significant changes in adjustment. More valid instruments might conceivably identify even greater changes than have been indicated here.

From the evidence presented by this experiment, several significant implications are forthcoming:

First, that teachers of speech who are interested in the improvement of the personal and social adjustment of their students, as well as in the improvement of voice and diction, may find an emphasis upon certain mental hygiene factors a desirable addition to course procedure and content.

Second, the presentation of the principles of mental hygiene, with adequate opportunity for discussion and individual participation through some form of speech approach, may be a valuable addition to so-called "orientation" courses.

Third, the question is at least raised, with reference to the teaching of mental hygiene as such, as to whether personal adjustment values, as opposed to mere gains in information, may not be increased by some such techniques of individual participation as have been employed in this experiment.

The study suggests further research in at least two areas:

First, it seems desirable to know whether, and to what degree, improved personal and social adjustment is related to improved speech effectiveness. This would be a difficult experiment, but possible if undertaken by an interested department of speech. Several non-participating speech instructors might first rate fairly large groups of students for various phases of speech effectiveness. One or more personality tests could be administered. The groups could then be divided into smaller units, part being taught with a mental-hygiene approach, part by another method, with instructors using both methods so as to cancel out personal differences. At the end of the course, the same nonparticipating speech instructors could again rate the reunited groups taught by different methods. This would clarify not only the relationship of improved adjustment to improved speech effectiveness, but also the adequacy, in terms of adjustment and more effective speech, of various teaching procedures.

Second, different techniques of teaching mental hygiene might well be subjected to controlled experimentation. It would be comparatively simple, after testing students' adjustment, to use different teaching procedures with various classes. One procedure might be purely lecture, one might provide for a certain amount of group discussion, and still another include a rather generous amount of individual participation on the self-analysis

or "verbal catharsis level." Using the *Social Insight Questionnaire* which differentiates between "Ideal" and "My Case" or some similar measuring instrument, adjustment values as opposed to mere gain in information would become apparent.

In conclusion, a statement by Edward Sapir is quite pertinent:

> Owing to the possibility of detecting conflict and other symptomatic reactions in speech, language behavior becomes a suggestive field for research in problems of personality.[10]

The question of validity of personality appraisal instruments remains a primary obstacle to more significant research in this, as in other, areas of personal adjustment. That aspects of personality are difficult to measure accurately, no one will doubt. That they may be measured more accurately with continued experimentation, no one should doubt. Our goal must be that of Good, Barr, and Scates when they say:

> Not until personality, in its many different phases, can be appraised by the teacher with as much significance to her as measurements of academic achievement have, and also with reasonable accuracy, can research workers or practical educators feel that appraisal procedures have been brought to a satisfactory level.[11]

[10] Edward Sapir, "Speech as a Personality Trait," *American Journal of Sociology*, XXXII (May, 1927), 892.

[11] Carter V. Good, A. S. Barr, and Douglas E. Scates, *The Methodology of Educational Research*, p. 316. New York: D. Appleton–Century Company, 1936.

THE ABILITY OF COLLEGE FRESHMEN TO CONSTRUCT THE MEANING OF A STRANGE WORD FROM THE CONTEXT IN WHICH IT APPEARS

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An accurate meaning vocabulary is fundamental to success in every school subject. Thinking in such subjects as arithmetic, science, social studies, or reading is confused, if not completely blocked, because of vague, inaccurate and wrong word concepts which students either bring to the class or acquire while there. It is the job of every teacher in every grade, therefore, to discover vocabulary deficiences and to find methods of helping students to construct accurate word concepts necessary to the understanding of a given subject.

A poor vocabulary may be due to many different factors, such as, inadequate language experiences, both auditory and visual, limited experience background, or inadequate instruction. It is possible, however, that some students acquire word meanings more readily than others because of certain abilities, not possessed by other learners. One such ability is that of using the context in which a strange word appears to construct the meaning of that word. One of the purposes of this investigation is to determine the extent to which college freshmen possess this specific vocabulary skill.

Although it is clearly recognized that constructing word meanings through the use of context represents only one[1] possibility for improving vocabulary, it is undoubtedly a very crucial one, since context may be used to construct word meanings not only in reading, but in lectures, discussions, and conversations. Therefore, a student possessing this skill is able to increase his vocabulary through various reading and listening activities both in school and out of school. A student who does not possess this ability, however, may fail to make adequate growth in vocabulary, since he has to depend to a large extent upon the teacher, the dictionary, and procedures for acquiring a non-technical as well as the technical vocabulary needed in each subject.

The relationship between the ability to use context in constructing the meaning of unknown words and intelligence, as well as vocabulary achievement, is indicated by the correlation of test data obtained in this investigation.

The data gathered on this problem consisted, first, of a group of words the meaning of which students did not know. Fifty non-technical words selected from various science, education, and psychology textbooks were given to an unselected group of 234 college freshmen for them to define or tell what they thought the words meant. Twenty four words which were unknown to 85 per cent or more of the group were chosen from this list. Sentences and paragraphs in which these twenty four words occurred were then selected from the textbooks and given to the same group of students. The students were told that the context in which each word occurred contained clues to the meaning of the word underlined, which was the word to be defined. They were urged to try to use these clues in finding out what the word meant.

Four of the words used in this study are discussed below in order to show the difficulties which students had in using the context to construct the meaning of a strange word.

ITINERANT

Content in Which the Word Occurred.—In the beginning the teacher travelled from one locality to another to meet the students, thereby bringing into existence the *itinerant* school master.

Analysis of the Context to Show the Nature of the Clues Therein.—The terms, *teacher* and *school master,* are used synonymously in this context. The connecting word, *thereby,* implies that because the teacher travelled from one locality to another, he was called an *itinerant* (or a *travelling, journeying,* or *wandering*) school master.

[1] Other procedures of major importance in developing vocabulary are the use of: (a) words in oral and written language; (b) dictionaries; (c) pictures, objects, observations, and dramatizations; and (d) various vocabulary drill exercises on prefixes, suffixes, antonyms, synonyms, the classification of word meanings, and the best choice of words.

Difficulties in Constructing This Meaning.—Seventy-eight students, or 33 per cent of the group tested, were unable to construct this meaning, which seems so very obvious to anyone who understands the sentence. Over half of these seventy-eight students had absolutely no idea what *itinerant* meant and thus gave no definition at all. The other half, obviously, saw no relationship between the parts of this sentence, but defined the word anyway by reading into the above content any meaning that occurred to them. For example, they said that an *itinerant school master* meant:

1. a research school master
2. a learned, lacking some knowledge school master
3. to get well acquainted school master
4. an immoral school master
5. an intolerable school master
6. much spoke of school master
7. humble school master
8. movable, not temporary school master
9. stationary, stay in one place school master
10. one who teaches many different things
11. a helping, performing school master
12. a dependent school master
13. a travelling knowledge school master
14. a private school master
15. a rural, country teacher
16. a bright school master

These students obviously did not understand the above sentence. They could pronounce all the words, but if reading means being able to *understand* the printed symbols, these students could not read this seemingly simple sentence. Furthermore, it is apparent that difficulties in reading such as these, or problems in understanding the printed page, will never be solved by exercises in word recognition.

Myriad

Content in Which the Word Occurred.—Merely reading the many books and *myriad* articles on this topic would require weeks of work.

The Nature of the Contextual Clues Provided.—The main point of this sentence is the amount of time and work it would take just to read all the material that had been written on the subject, thus implying that a great deal had been written on the subject. In addition to this clue, the reader may imply from the phrase, *the many books,* that the expression, myriad articles, logically, has something to do with quantity or number of articles.

Difficulties in Constructing the Meaning.—Fifty-six percent of the students tested, or 131 students, were unable to construct the meaning of this word from this context. Thirty-two students, or 24 per cent of them, had no idea what the word *myriad* meant after reading the above sentence, and would not even attempt to define the word, while one hundred of them constructed wrong meanings.

As noted below, some of the meanings given were utterly impossible. They said that myriad meant:

1. Tales
2. Mythical—generally believed to be true, acceptable, etc.
3. Interesting facts
4. Images of something
5. Facts informative
6. Several objects or things
7. Concerning
8. Pertaining to, about
9. Widely spread

What kind of meaning are these 131 students constructing in their minds, if any? For example, in view of the second definition, does this student mean that merely reading the many books and mythical articles (generally believed to be true, acceptable, etc.) on this subject would require weeks of work? Or using the meaning given in No. 8 above, is this what the sentence means to this student, "Merely reading the many books pertaining to articles on the topic would require weeks of work?"

Approximately 50 per cent of the wrong meanings given for this word show that the student guessed at the meaning of the word, *myriad.* Instead of using other clues in the sentence to help define or delimit the exact meaning of this word, they gave any adjective which might describe articles that came into their minds. For example, they said that myriad articles meant:

1. Current, present day articles
2. Unauthorized articles
3. Short, brief articles
4. Long articles
5. Important articles
6. Unimportant articles
7. Necessary articles

8. Wide spread, miscellaneous articles
9. Particular articles
10. Similar articles
11. Different articles
12. Related articles

Thus, students not only may fail to construct a correct meaning, but they may actually get a wrong meaning of a word from the context.

VICARIOUS

Content in Which the Word Occurred.—Part of our education is obtained directly through actual experiences; *vicarious* experiences which come through reading, pictures, lectures, art, and music are equally important, however, as a means of extending real experiences.

The Nature of the Contextual Clues Provided.—Two kinds of experiences are referred to in the above content, *real or actual experiences* which are obtained directly and *vicarious experiences* which are obtained indirectly through reading, pictures, lectures, etc. The student may thus conclude that *vicarious* means unreal, imaginative, not actual, indirect, or the opposite of *real experiences*. Further verification of this meaning may be obtained by analyzing the kind of experiences which one has *in reading, in looking at pictures, in hearing music*, i.e., by identifying one's self with the hero or heroine of the book, the reader may participate in the experiences described. Thus, examples of answers to receive full credit in the present study are as follows: *not real life experiences, substitute experiences, in place of, that which is obtained through another's experience*, or *next to the real thing*. Half credit was given to *imaginative, borrowed from someone else*, and *indirect*.

Difficulties in Constructing the Meaning.—Two hundred and fifteen students, or 91 per cent of the group, either gave no answer at all or named incorrect answers. Although 75 per cent of the group tried to define the word, the majority of their answers showed either complete inability to use the context or a wrong use of it, which resulted in a variety of definitions, many of which are entirely inconsistent with the content. Examples of some of these errors are as follows:

In the sentence, *"Vicarious experiences are equally important in extending our real experiences," vicarious experiences* meant to some students:

1. experiences obtained gradually
2. indiscrete experiences
3. participate
4. the act of feeling, seeing, learning
5. non-living experiences
6. living experiences
7. the experiences that come through the senses
8. experiences that do not happen
9. by chance experiences
10. sensual experiences
11. induced experiences
12. through these stages experiences
13. imitation experiences
14. unnoticeable experiences
15. experiences in which one does
16. contributing experiences
17. miscellaneous experiences
18. true or real experiences

Is it possible that students do not know what *real experiences* are? If so, why do they think that feeling, seeing, and experiences that come through the senses are not real experiences? In Answer 20, Does this student think that vicarious and real experiences are synonymous? If so, how can one extend the other? In still other cases, do the symbols have any meaning whatsoever to the student? For example, what is meant by a *non-living experience*, or *through these stages experiences*, or *participate experiences*. Such habits of verbalism, if tolerated, become established and students soon fail to demand meaning or clear accurate understanding, either in reading or in trying to convey ideas to someone else.

In many instances, the students merely selected any adjective that might describe the word *experience*, or their attention seemed to be focused on the various media or situations in which vicarious experiences may be gotten. Thus, they said that *vicarious* meant *various, educational, different, pictorial, vivid, many, main, pleasing, wide, similar, remote, impressive, small, studied*, and *unusual* experiences.

QUALITATIVE AND STATISTICAL ANALYSES OF TEST DATA

The qualitative data, obtained from an analysis of errors, show that the clues to be used in constructing the meaning of unknown

words are not inherent in the content; they are only represented by the symbols on the page. In other words, the clues are the relationships that exist between word, phrase, and sentence meanings or they are the meanings that are inferred from those given in the context; and thus the context may be said to contain clues for a reader only in so far as the reader himself sees relationships between and makes inferences from meanings in the context. The words, phrases, and sentences are merely symbols of meanings which, if used correctly, provide clues to the meaning of a strange meaning.

From an analysis of the nature of the clues represented in the context, it was shown that the ability to construct word meanings from context depends upon (1) the ability to see relationships between word, phrase, and sentence meanings in the context, (2) the ability to infer meanings from those contained in the context, and (3) language facility in paraphrasing the meanings in the sentences and paragraphs. The abilities noted in items (1) and (2) indicate that reading, which involves the ability to construct meanings from context, is a thinking process. In addition, item (3) above indicates that certain reading and language abilities are probably related.

Both the quality and the number of errors noted above indicate that there are probably more important reading problems than rate of reading to be solved, particularly at the secondary school and college levels. Also, it is obvious from this study that eye movement machines, which have often been used indiscriminately as a cure-all for reading deficiences, will never remedy difficulties which students have in constructing meanings or in thinking accurately, and these latter problems become increasingly important at successive grade levels. The percentage of children in the first grade who do not understand the materials they read is negligible as compared with the large number at the college level who do not understand what they read. First grade children, furthermore, are better able to recognize occasions when they do not understand than are college students.

The scores made on the 30 test words ranged between 1.5 and 22. The highest possible score which a student could have attained on this test was 30. A median score of 12.72, therefore, meant that the 234 freshmen, as a group, needed to develop the ability to construct the meaning of a strange word by using the context in which it appears. The scores made on this test formed a normal frequency distribution, which shows that the construction of a strange word from context is a specific ability which students possess in varying degrees.

For many years, it has been assumed that extensive and wide reading is a crucial means of increasing vocabulary. The data of this investigation indicate, however, that probably individuals vary in their ability to increase vocabulary in this way. For example, the student who had only a score of one in ability to construct word meanings from context, not only will profit little from wide reading but, at present, because of extreme difficulties in understanding, she has no desire to read at all, much less to read extensively and widely.

An average of 48 per cent of the 234 students tested were unable to construct correct meanings of the 30 test items, and thus could not read accurately this group of sentences and paragraphs which are relatively simple when compared with those commonly found in their textbooks. Thus, it would seem that probably definite instruction in reading is needed by a much larger percentage of college students than the mere 10 or 20 per cent who, it is often estimated, represent the only ones who have difficulty in reading.

In addition to the scores made on the test of ability to construct word meanings from context, percentile rankings on a psychological, a vocabulary, and a reading test were obtained for each student.

The relation between the various abilities tested was determined, first, by dividing the students into two groups according to high and low scores on the intelligence test, on the vocabulary test, and on the reading test. After each grouping, a comparison was made between the groups with high and low scores to determine differences in ability to construct the meaning of words from context. If the significance ratio was 3 or more, the difference between the two groups was considered significant. Then correlations were calculated between the various abilities tested. The results of these statistical analyses are as follows:

When the cases were divided according to high and low scores made on the intelligence test, the reliability of the difference between the two groups in ability to use context, or the significance ratio, was 7.85. The correlation between intelligence and the ability to construct word meanings from context was .504 ± .03. This means that the group of students with higher intelligence had greater ability to use the context in constructing the meaning of a strange word than did those with lower intelligence.

An even greater difference was found between the two groups in ability to use context when the cases were grouped according to differences in vocabulary achievement. The significance ratio in this case was 12.56. The correlation between vocabulary and the ability to use context was .564 ± .03. When intelligence was partialled out, the correlation was still .391. This means that the group which had the higher scores in vocabulary had much greater ability to construct the meaning of a strange word from context than those with lower scores in vocabulary.

When grouped according to ability to read paragraphs and sentences, however, the two groups did not differ significantly in the ability to use context, the significance ratio being only 2.8. The correlation between the reading performance and the ability to use context was .384 ± .04. When intelligence was partialled out, the correlation between these two abilities was only .143. This does not necessarily mean, however, that the ability to use the context in constructing the meaning of a strange word is not an important reading skill. It is extremely important, if the material to be read contains strange words which the author has defined in the context in which these strange words occur. Since both the significance ratio and the correlations are not significant, it may indicate that skill in constructing word meanings from context was not required in the reading test used in this investigation.

Summary of Findings

The data in this investigation indicate that:

1. The construction of word meanings from context is a specific ability which students possess in varying degrees. Consequently, individuals may vary in their ability to increase vocabulary through extensive and wide reading.

2. An average of 48 per cent of the 234 freshmen tested were unable to use the context in constructing correct meanings of the thirty test words and, thus could not read accurately these relatively simple sentences and paragraphs taken from their textbooks.

3. The clues to be used in constructing the meaning of unknown words are not inherent in specific words, phrases, or sentences; they are merely represented by these symbols.

4. An analysis of the nature of the clues represented in the context indicates that the construction of word meanings from context depends upon: (1) the ability to see relationships between word, phrase, and sentence meanings in the context, (2) the ability to infer meanings from those contained in the context, and (3) language facility in paraphrasing the meanings in the context. Thus, reading which involves the construction of word meanings, and perhaps other meanings, is a thinking process and involves certain language skills.

5. Students vary in degree of accuracy in constructing word meanings from context. Some of the answers given represent mere verbalism, while other answers clearly indicate a higher degree of understanding.

6. Students who possess the ability to construct word meanings from context tend to have better vocabularies and somewhat higher intelligence ratings than do those without this ability.

The findings of this study should enable teachers to understand more accurately the nature of the ability to construct word meanings from context, as well as the difficulties which students encounter. Through such understanding, it is hoped that more effective methods for developing this ability may be worked out. It would then be interesting at some later date to determine the effect of such training on intelligence and vocabulary achievement.

THE RELATIONSHIP OF THE STUDY OF HISTORY TO STUDENT ATTITUDES[1]

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The Problem—The subject matter of history, in its widest connotation, is the record of all that has transpired up to the present moment. As it is taught as a school subject, it concerns primarily the significant ideas, events, and activities of the past which may serve to explain how the past has affected the world of the present. A principal benefit which many educators hope will result from the teaching and study of history is that, through the medium of an historical background, students will be able to make better judgments of contemporary affairs. Such a hope presupposes that, as a result of the study of history, modifications of student attitudes with regard to ideas and issues of current interest and importance will occur.

By the time students have become seniors in college, generally they have elected and pursued in some detail a specialized curriculum with one field of learning for their major study. Many students choose history as the subject in which they wish to specialize. Since they, more so than others, concentrate on a study of the records of the past, it might be assumed that their attitudes toward present ideas, affairs, and trends might differ in some recognizable way from the attitudes of students whose special interests lie in other subject matter fields.

The economic status of students is another factor which might relate to the way students view affairs of the present. Indeed, it is not infrequently a matter of speculation as to whether the attitudes of students who work to support themselves while in college differ from the attitudes of students who are not required to support themselves during their college years.

This study was undertaken as an attempt to answer these questions: (1) Do college seniors who major in history view contemporary questions and problems differently from seniors who major in other fields of learning? (2) Do college seniors who have worked to support themselves while in school (earning seventy per cent or more of their income) view contemporary problems and affairs differently from students who have not worked to support themselves while in college?

Procedure—First, it was necessary to devise some means by which opinions of college seniors concerning controversial questions of contemporary interest and importance could be secured and compared. To meet that requirement, an original questionnaire comprising one hundred statements was constructed which pertained generally to eleven different topics. The topics were: rights, duties, and privileges of individuals; ethical or moral opinion; political theory and practices; international questions; functions of government; news and propaganda; education; relief and social security; immigration; race and race relations; and labor questions.

This questionnaire was submitted to several persons for their criticisms and suggestions. The persons comprising this group were social scientists, psychologists, school instructors, a school administrator, and a business man. As a result of their suggestions, many changes in terminology were made, some of the statements were eliminated, and some new statements deemed to be more pertinent were added.

Trial groups of students (a total of sixty-six) at the George Peabody College for Teachers and at the Central State Teachers College (Edmond, Oklahoma) participated in establishing the reliability of the questionnaire. It was administered to them twice, with an interval of three weeks between times, and they were not aware that they would be requested to check the questionnaire a second time. For each statement they could indicate whether they agreed entirely or partially, disagreed entirely or partially, or were undecided. The coefficient of correlation for agreement of the two scorings was .96, and

[1] Abstract of doctoral dissertation, George Peabody College for Teachers, July, 1939.

the coefficient of correlation for disagreement was .95, which indicated that the questionnaire was reliable as an indicator of opinion.

Faculty members in twenty different colleges and universities[2] in Arkansas, Louisiana, Oklahoma, and Texas distributed questionnaires to representative groups of seniors in their institutions. They also assumed the responsibility for returning the scored questionnaires to the author.

More than eight hundred seniors scored questionnaires, but not all of the copies scored were usable. This was true because some students did not score all the statements, some neglected to record information with regard to their major and minor subjects, and some registered more than one opinion on some of the statements. Eliminating those which could not be used, there remained 775 questionnaires which were suitable for use in making comparisons.

These questionnaires were divided into four groups: (1) seniors majoring in history; (2) seniors majoring in social sciences other than history; (3) seniors with minors in social science but with majors in other fields; and (4) seniors with neither majors nor minors in social science. After the scores for these four groups were tabulated, the questionnaires were divided into two groups: (1) seniors who had earned seventy per cent or more of their income while attending college, and (2) seniors who had earned none of their income while attending college. The scores of these two groups were then tabulated.

Percentage distributions were used as bases for statistical comparisons of group scores. Agreement with a statement was designated as affirmative opinion and was indicated by the conventional plus (+) sign. Disagreement was designated as negative opinion and was indicated by the conventional minus (—) sign. Undecided opinion was regarded as neutral and did not figure in the statistical comparisons. For each statement, the smaller percentage (either positive or negative) was subtracted from the larger to determine the margin of difference of agreement or disagreement. The margins of difference were then compared to determine similarity or dissimilarity of group opinion.

Conclusions—Quantitative comparisons of the opinions of the four subject matter groups on the questionnaire items showed these results:

1. Differences, in the main, were those of degree of the same positive or negative opinion in which all four groups concurred. On only fourteen items did one or more groups register opinion, either positive or negative, different from the other groups. On only four of those did the history majors register an opinion different from the other three groups.

2. No one group consistently showed extremes of opinion throughout the questionnaire. (Extremes here mean greatest or least assent or dissent on an item.) Majors in history occupied extreme positions on fifty-four statements, majors in social sciences other than history on sixty statements, minors in social science on thirty-nine statements, and non-majors and non-minors in social science on forty-seven statements.

3. Majors in social sciences other than history differed most with the history majors on forty-three statements. Non-majors and non-minors in social science differed most with majors in history on thirty-two statements. Students minoring in social science but majoring in other subjects differed most with history majors on twenty-five statements.

4. Students neither majoring nor minoring in social science showed least difference from the history majors on thirty-nine statements. Majors in social science other than history differed least from the history majors on thirty-five statements. Students minoring in social science differed least with the history majors on twenty-six statements.

5. The history majors showed margins of difference of as much as 10 per cent from all other groups on only eight statements.

6. On thirty of the statements there was less than 10 per cent difference between scorings of all the groups.

7. On forty-one statements the history majors differed by as much as 10 per cent from the majors in social sciences other than history. On forty items the history majors

[2] Colleges and universities represented in the study are: University of Arkansas, Arkansas State Teachers College, Ouachita College (Arkansas), Henderson State Teachers College (Arkansas), Hendrix College (Arkansas), Southwestern Louisiana Institute, Louisiana State Normal, Louisiana Polytechnic Institute, Centenary College (Louisiana), the University of Oklahoma, Oklahoma Agricultural and Mechanical College, Oklahoma City University (Oklahoma), Central State Teachers College (Oklahoma), Northwestern State Teachers College (Oklahoma), Southwestern State Teachers College (Oklahoma), Southeastern State Teachers College (Oklahoma), Southern Methodist University (Texas), Baylor University (Texas), Rice Institute (Texas), and the Sam Houston State Teachers College (Texas).

differed by as much as 10 per cent from the social science minors. On thirty-two items the history group differed from those neither majoring nor minoring in social science by as much as 10 per cent.

In view of the small amount of difference shown between the opinions of the majors in history and the other groups, and that difference shown had no constant trend, it was concluded that the results of this study do not show that those who majored in history viewed social questions in a consistently different light or to a consistently different degree from students working in other fields of learning. This conclusion, of course, applies to the results of this study, and any generalizations made must fall within the limitations of the study, the questionnaire, and the method of analysis employed.

A comparison of the differences of opinion revealed by the scores of the students who earned none of their income while in college and those who earned 70 per cent or more of their income shows these results:

1. On only nine statements did one group register positive opinion and the other negative opinion.

2. The two groups differed by as much as 10 per cent on forty of the one hundred statements. On less than ten of the statements did they differ by as much as 20 per cent. On sixty statements the difference was less than 10 per cent.

3. Items on which differences of more than 10 per cent were shown usually were ones where the economic status of the student scoring them might reasonably be considered a factor affecting his opinion.

On the basis of these comparisons it was concluded that students participating in this study who earned the major portion of their income while in college varied but slightly from the opinions of students who earned none of their income. In the instances where variation did occur, it is probable that the economic status of the students, directly or indirectly, was a factor of importance determining differences in their opinions.

Footnote to the title of the article, "A Study of the Relation between Achievement in Required Courses and Subsequent Academic Record in the College of Engineering, Cornell University," by Grace E. Ostrander, published in the June 1940 issue of this Journal: *An abstract of a thesis prepared by the writer at Cornell University, 1939 under the direction of Dr. Thomas L. Bayne, Jr.* The writer is also indebted to the other members of her special committee: Dr. Paul J. Kruse and Dr. Frank A. Pierson.

EXPERIMENT TO DETERMINE THE MOST EFFECTIVE METHOD OF TEACHING CURRENT HISTORY[1]

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The Problem.—The problem of this study is to determine the most effective method of teaching current history in the elementary schools.

Limitations of the Problem.—It is limited so as to discover which method produces the most lasting results, the method of using sound film against such traditional methods of teaching current history as reading of newspaper articles by teachers to the class, the reading of newspaper articles brought to class by the pupils, the reading of periodicals such as *Current Opinion, Time,* and others.

Need for the Study.—Since the subject of current history is a vital part of the educational program of the schools, and since the sound motion picture makes a definite contribution to the instructional process, it is desirable that some one experiment in the field of current history to determine the comparative effectiveness of the talking picture and the other methods of presentation available for teaching in the schools. Judd said, as far back as 1923, "The first conclusion is that much work needs to be done in educational experimentation and research having for its purpose the discovery and the development of the best methods for using motion pictures in teaching. In this field a start has been made, but the work has not yet reached the point where the results are getting back to the classroom teacher." Although many advances in the use of visual aids have been made, still, in the main, Judd's statement makes its challenge.

Similar Studies.—In the field of visual instruction, hundreds of experimenters have spent almost countless hours to find the best ways of using the various visual aids which have appeared from time to time. Today, we have the sound film; yesterday, it was the silent film. However, the silent film had to come first; and educational experiments with silent films naturally had to precede experiments with sound films. One of the most important experiments in the silent field was that conducted by Daniel C. Knowlton and J. Warren Tilton. This experiment has made a definite contribution to the field of visual instruction. Its purpose was to "measure the contribution of photoplays to enrichment, retention, and the creation of interest."

In the field of sound-film experimentation, the works of such educators as Philip J. Rulon, C. C. Clark, Harry A. Wise, and Varney C. Arnspiger have added materially to the body of practices, techniques, and knowledge, from which later investigators are borrowing. Each of these experimenters made some definite contribution, but no one has dealt with the field of current events as treated in the present study.

Sources of Data.—The results of an actual experiment conducted in the 6B grade of six elementary schools are the chief sources of the data used in this research. Data were also obtained from educational books, periodicals, and other research and experimental studies.

Method of Attack.—The principal method of attack in this study was experimental.

Schools Selected.—Six schools were chosen. These schools were selected because of similar socio-economic backgrounds.

Organization of Classes.—The 6B grade was selected for this experiment. All children who were to be included were given the National Intelligence Test—Form B. A socio-economic questionnaire was filled out by each pupil in the experiment. The classes were heterogeneously organized on the basis of intelligence quotients and similarity of socio-economic backgrounds. A variation of the paired experimental control technique was employed. In addition to the experimental and control classes, a zero-point class, which received no instruction whatsoever, was part of the setup. The experimental class used the film; the control class used a special news

[1] Abstract of thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the School of Education of New York University, 1939.

leaflet, *The Photo Reporter*, especially written and printed for the experiment, and containing the same facts as were seen in the film; the zero-point class was exposed to newspapers, photo reporters, and magazines, but received no instruction at all.

Selection of Teachers.—The teachers were chosen because of their interest in current history and visual instruction. The principals were asked to select an average teacher who was interested in visual education, current history, and general research.

Teaching Procedure.—The same teacher taught both the experimental class which used the *March of Time* film and the control class which used the *Special Photo Reporter* as its news medium. The same teacher also supervised the zero-point class, to make sure that it received no definite instruction whatsoever on the film topics. This zero-point group was exposed to magazines, periodicals, etc., as the news media. Each lesson series consisted of two lessons, one assigned to the presentation of the new topic, the other for review. Thus, the film was shown twice; and the *Photo Reporter* read and reread. Definite lesson plans were prepared for the teacher and a preview of each film was given a week before the film was used.

Administering the Tests.—New-type tests were created, for example, true-false, multiple choice, completion, and matching. The experimenter avoided the essay-type question with its possible multiplicity of varied correct answers. The questions in the tests were selected by the teachers as the most worthwhile, and because answers to them could be found in both the film and the *Photo Reporter*. They were also checked for reliability by the application of the Spearman formula. A pretest was given before each new lesson, and a follow-up test was given immediately after the the review lesson. Ten days later a retention test was given to each of the three types of classes to determine how much of the information gained was retained by the pupils of each group. Each test was composed of the same fifty questions. The follow-up test was the pretest with the questions rearranged so that the children would not have a chance to memorize the material. The ten-day retention test was the same as the pretest. Ten weeks later, a test of a hundred questions, composed of ten questions from each test of each of the ten units, was given in order to discover which group retained the most after a period of ten weeks. A year later, 144 pupils of the original experimental and control classes were given the same final test. This retest was the last of the testing program.

Scoring the Tests.—All tests, including intelligence tests, were marked and checked by a corps of workers chosen by the investigator. Definite answer keys were given to the markers so that this element would also be controlled.

Types of Data.—The types of data recorded by the investigator were the intelligence quotients, the socio-economic background questionnaire, and the scores in the various tests given.

The Treatment of the Data.—The intelligence test quotients were the basis for the separation of the pupils into heterogeneous, matched sections.

The socio-economic background questionnaire was used to determine the similarity of the social standing and the economic conditions of the pupils in the different groups in the various schools, and was also used in the grouping of the pupils in the grade into experimental, control, and zero-point classes. The investigator found that there was close similarity among these experimental, control, and zero-point groups.

The data from all the pretests, follow-up tests, retention tests, final tests, and final retests were organized into tables that contained the following items:

Number of cases.

Means of pretests, follow-up tests, and retention for the experimental, control, and zero-point groups for each unit in the experiment, and for the combined units.

Standard deviations of the means to describe the spread of the scores, as a measure of variability.

Critical ratios to determine the reliability of the measures.

Other items, such as the standard error of the means, difference of the means, and the standard error of the difference of the means, were also included in the tables to indicate how the critical ratios were obtained. The report includes seventy-seven tables and fourteen diagrams.

The investigator analyzed the results of the data in each unit to point out the mean-

gain instructional and retention superiorities of the respective groups in the different units and also in the combined units. He also pointed out the retention superiorities in per cents for the different groups in the individual and combined units of the experiment, and treated similarly the data of the final one hundred selected questions.

Summary.—After a study of the results as to immediate instructional superiority, the conclusions are that:

1. The control group was superior to the experimental group in the majority of the individual units of the experiment.
2. The control group was superior to the zero-point group in each of the individual units of the experiment.
3. The control group was superior to the experimental group in the combined units of the experiment.
4. The control group was greatly superior to the zero-point group in the combined units of the experiment.
5. The experimental group was greatly superior to the zero-point group in each unit of the experiment.
6. The experimental group was greatly superior to the zero-point group in the combined units of the experiment.

In the retention of learnings within ten days from the lesson, it was found that:

1. The control group and the experimental group were evenly matched as to the number of units in which each was superior.
2. The control group was superior to the experimental group in the combined units of the experiment by .09 mean point.
3. The control group was superior to the zero-point group in each of the units in the experiment.
4. The control group was superior to the zero-point group in the combined units of the experiment by 7.02 mean points.
5. The experimental group was superior to the zero-point group in each of the units of the experiment.
6. The experimental group was superior to the zero-point group in the combined units of the experiment by 6.93 mean points.
7. From the point of view of the percentage of retention, which was determined by finding the per cent of the knowledge learned that was retained after ten days, the experimental class was superior to the control class in eight of the ten units. For the combined units it was superior to the control class by 2.88 per cent.
8. From the point of view of the percentage of retention, the zero-point group, strangely enough, was slightly superior to the experimental group in seven of the ten units; and in the combined units by only 2.14 per cent.
9. From the point of view of the percentage of retention, the zero-point group was superior to the control group in the combined units by 5.09 per cent.

In the retention over varying intervals of time, the investigator found that:

1. The control group was superior to the experimental group immediately after the follow-up test in the mean-gain information learned through instruction for the experimental and the control groups by .27 mean point.
2. The experimental group was superior to the control group, ten days after the lesson in the mean-gain information learned through instruction, by 1.48 mean points.
3. The experimental group was superior to the control group at the time of the final test, ten weeks after the end of the experiment, in the mean-gain information learned through instruction by 4.20 mean points.
4. The experimental group was superior to the control group at the time of the final retest, one year after the end of the experiment, in the mean-gain information learned through instruction by 6.46 mean points.
5. Of the per cent of retention of knowledge gained through instruction at the time of the retention test, the experimental group showed a superiority of 4.73 per cent.
6. Of the per cent of retention of knowledge gained through instruction at the time of the final test, the experimental

group showed a superiority of 12.15 per cent.

7. Of the per cent of retention of knowledge gained through instruction, at the time of the final retest, the experimental group showed a superiority of 17.16 per cent.

Conclusion.—The experiment revealed that the sound-film procedure, as described in this study, was more effective than the traditional textbook-study method of the printed news media, since more of the information gained through the film was retained by the pupil so instructed. The experimenter concludes, therefore, that the film is a more effective teaching medium than a current news periodical, even though that periodical is especially prepared for the experiment and the film is not so prepared.

THE TEACHING PROBLEMS OF 1075 PUBLIC SCHOOL TEACHERS*

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This study is an attempt to determine the most frequently recurring teaching problems of public-school teachers, as revealed by their written statements in reply to a questionnaire sent to representative schools in Colorado. It was believed that an analysis of problems confronting teachers would be useful in: (1) suggesting problems for discussion and solution through reference to educational literature, and (2) pointing out opportunities for more extensive educational research.

The investigation was carried on with the cooperation of principals and superintendents in representative Colorado schools accredited by either the University of Colorado or the North Central Association of Secondary Schools and Colleges. Letters were sent explaining the nature of the study and enclosing forms to be completed by the various teachers. The canvass was simplified and interest in the study was evidently stimulated through this coöperation. Approximately thirteen hundred forms for teachers were distributed, of which 1,130 had been completed and returned at the time of tabulating the data, a return of 86 per cent. (There were a few teachers who stated that they had no problems; see Table I.) Each blank requested information concerning subjects taught, school grade, size of school (in terms of total number of teachers in the system), and the total number of years of teaching experience. The information of greatest significance to the present study was solicited by requesting each teacher to list specific teaching or learning problems occurring with greatest frequency in his daily teaching. The request for this information was worded as follows:

> List below, in any order, the learning or teaching problems which cause you most difficulty. Some of the categories under which these problems may fall include: (1) motivation—making children want to learn; (2) mode of presentation—plan of presenting, organization of subject matter for classroom discussion, etc.; (3) testing and evaluating—diagnosing of difficulties, construction of tests, frequency of testing, etc. We wish you to select *specific* problems which pertain to certain broad categories such as those indicated. In particular, we wish to know of problems which occur again and again in your own work.

It is possible that some teachers were directly influenced by the representative types of problem suggested. In any event, many problems reported were stated categorically, a fact that may be attributable to the power of suggestion, or, as is equally likely, to the desire of teachers to heighten the significance of their problems by stating them as general, rather than specific, problems. There was, however, so generous a report of specific, concrete problems that it is apparent that the influence of the form of the request was not generally misleading. It was believed that enough guidance should be provided in formulating replies to prevent digression from classroom and teaching problems.[1]

The range of size of school (in terms of the number of teachers in the entire school system) was from 3 to 139 (median, 31). An effort was made to sample schools of all sizes.[2] The range of total teaching experience of the elementary school teachers was from 1 to 41 years (median, 10 years); that for junior high school teachers, from 1 to 37 years (median, 6 years); and that for senior high school teachers, from 1 to 38 years (median, 5 years). In a majority of cases, the school systems sampled had no formally organized junior high schools. It was believed, however, that the problems reported by seventh,

* This study was made possible through the cooperation of the Extension Division of the University of Colorado.

[1] Even with the guidance given, one teacher stated that her most difficult problem was that of "walking three miles to school"; another reported that "hard water in the community" constituted her major teaching difficulty.

[2] The schools of Denver, Colorado Springs, and Pueblo were not sampled, since these systems have facilities for investigating their own problems.

eighth, and ninth grade teachers should be segregated and regarded as typical of the junior high school level, and likely to differ somewhat from those of the lower and higher grades.

The results of the study are set forth in two tables. Table I gives the results of an attempt to establish a detailed classification by which the nature of specific problems and their relative frequencies could be shown. It should be emphasized that the numbers and percentages have no reference to individual teachers or to particular subjects, but to the number of times a major problem or a specific aspect of a major problem occurred.

Table II, the data of which are also presented graphically in Figure 1, treats the broad categories of classroom problems. The emphasis on problems to be discussed is determined largely on the basis of frequency of report. The first five major classes of problems shown in Table II for the elementary school constitute 76.5 per cent of its total number. For the junior high school, 71.7 per cent of the problems are included in the first five categories; and for the senior high school, the first five major problems constitute 74.0 per cent of its problems. For all schools combined, 74.7 per cent of the problems are included under the first five major categories. Inasmuch as the first five major classes of problems in Table II constitute so large a percentage of the total number of problems, it may be concluded that these problems are most significant to the teachers sampled, and in the discussion which follows they will be given major emphasis.

1. *Motivation*

It may be seen from Table II that motivation ranks as a problem of first magnitude for teachers of all types of school. As in the case of all general types of problem, a great many responses could be fitted only into the broad category of *unclassified* problems of motivation. Teachers as a rule showed an inclination to state a problem which coincided with motivation or else went to the other extreme by being so specific that it would have necessitated setting up a subordinate classification. Following general or unclassified problems, the greatest interest (when all types of schools were considered together) appears to be motivation in relation to individual differences—why the effects of a given type of motivation are effective with some pupils and not with others. The attitude of pupils that they have no desire to work beyond the point of "getting by" also ranks high in order of mention, and teachers feel that there should be some way of counteracting the effect of this attitude. There is also the problem of developing favorable attitudes toward school work and of a critical appraisal of one's own performance. Frequent reference is made also to interest in developing skills in various subjects and interest taken in one's own improvement, the problem being to secure the effort of the pupil to strive for success and to set for himself high standards of excellence in performance. Less frequently referred to are the development of the desire to express one's self properly, the desire to take part in class activity, the ability to judge the quality of one's performance, and the desire to correct errors. Several teachers regretted their lack of success in getting pupils interested in current problems. It is significant that so large a number of problems did not stress motivation as a means to secure immediate mastery, but preferred to inquire about the type of influence that would be motivating over a long period of time and have permanent effects upon life attitudes. Also teachers seem aware of the desirability of getting the pupil to realize his own possibilities as an individual.

The significance of the problem of motivation is well expressed by a superintendent, who has 38 years of experience:

> Making pupils *wish* to learn—if this can be done, the pupil will learn, no matter what texts or methods are used. If it cannot be done, the pupil will *not*, regardless of texts or methods. Methods may possibly have an influence in making the pupil wish to learn, but too often methods result in making the pupil wish to be entertained or thinking it is up to the teacher to assume the entire responsibility. If someone could show me how to make pupils wish to learn, I would feel that 90 per cent of teaching difficulties are solved.

Strikingly revealed in the reports of teachers of all levels of education was the belief that teachers find it extremely difficult to motivate pupils beyond the point of "merely getting by". Many teachers, especially in high

TABLE I

FREQUENCIES OF PROBLEMS[1]

Type of problem	Educational level: Elementary school	Junior high school	Senior high school	Total
MOTIVATION				
Unclassified	117	83	163	363
Interest in ideals, responsibility, etc.	14	9	26	49
The "getting by" attitude	2	11	34	47
A self-critical attitude, and interest in one's improvement	3	4	15	22
Individual differences in motivation	35	25	24	84
Total	171	132	262	565
TESTING AND EVALUATING				
Unclassified	62	19	46	127
Constructing tests, and setting up teaching objectives	32	13	30	75
Recognition of individual differences in testing	5	4	5	14
Frequency of testing	24	7	17	48
Purposes served by tests	17	5	7	29
Interpretation of scores—marking	21	14	31	66
Total	161	62	136	359
DIAGNOSING AND CORRECTING DIFFICULTIES				
Unclassified	69	16	31	116
Reading difficulties, and remedial measures	89	13	28	130
Analytic testing, diagnosis, etc.	11	2	8	21
Total	169	31	67	267
INDIVIDUAL DIFFERENCES				
Unclassified	36	6	32	74
Seat and homeroom work	13	--	--	13
Remedial work for heterogeneous groups	20	18	6	44
Grouping and sectioning	7	--	--	7
Finding time for individual pupils	77	4	11	92
Total	153	28	49	230
MODES OF PRESENTATION				
Unclassified	45	20	30	95
Adaptation to individual differences	9	4	20	33
Preparation of pupils for assignments	3	2	6	11
Making materials interesting, sense modality, etc.	7	7	11	25
Organization and arrangement of material	33	10	12	55
Level of subject matter difficulty	2	7	1	10
Drill	10	3	--	13
Total	109	53	80	242
RELATIONSHIPS WITH THE ADMINISTRATION				
Teacher load	25	8	17	50
College entrance requirements	--	1	4	5
Pupil attendance	11	2	5	18
Total	36	11	26	73
TRANSFER OF TRAINING				
Unclassified	1	5	5	11
Correlation between subjects	14	3	5	22
Making school work practical	9	8	27	44
Total	24	16	37	77

TABLE I—Continued

Type of problem	Educational level: Elementary school	Junior high school	Senior high school	Total
HOW TO STUDY				
Unclassified	2	--	1	3
Proper application	--	--	9	9
Teaching pupils to think	13	9	9	31
Effective methods of study	6	7	7	20
Attentiveness	6	3	--	9
Homework	--	5	8	13
Total	27	24	34	85
LACK OF MATERIALS AND EQUIPMENT				
Unclassified	2	2	4	8
Materials for special subjects (shop, music, art, etc.)	--	--	4	4
Laboratory equipment	19	2	10	31
Textbook, reference, and library materials	4	5	12	21
Total	25	9	30	64
RACIAL DIFFERENCES				
Language handicaps	13	--	--	13
Retarded and low-rated pupils	7	3	--	10
Total	20	3	--	23
PARTICIPATION IN CLASS				
Unclassified	2	2	2	6
Proper distribution	2	4	3	9
Orderly discussion	9	6	13	28
Total	13	12	18	43
DISCIPLINE				
Unclassified	9	14	7	30
Individual	--	2	5	7
Group	1	5	10	16
Total	10	21	22	53
PARENT-TEACHER RELATIONSHIPS	6	1	4	11
CURRICULAR AND EXTRA-CURRICULAR ACTIVITIES				
Planning of, and interference by, extra-curricular activities	2	7	11	20
Inadequate curriculum, ill-adapted, overcrowded, etc.	30	3	3	36
Total	32	10	14	56
GUIDANCE				
Unclassified	--	--	2	2
Personality and character training	2	1	1	4
Helping pupils with personal problems	--	2	6	8
Inadequate knowledge of pupil background	6	2	3	11
Total	8	5	12	25

TABLE I—Continued

Type of problem	Educational level: Elementary school	Junior high school	Senior high school	Total
THOROUGHNESS	33	9	12	54
Number of teachers responding	528	212	391	1130
Number of teachers stating they had no problem	28	11	16	55
Total number of usable replies	500	201	375	1075

[1] No attempt was made to determine the average number of *different* major problems listed by the teachers. To do so would entail difficulties, for some teachers listed a major problem and also a number of specific aspects of the same major problem.

[2] Problems of teachers would undoubtedly vary with type of subject taught and many other factors, but inasmuch as most teachers sampled teach several subjects it would be extremely difficult to make such differentiation. The purposes of the study, it is believed, are best achieved by making a gross tabulation of the types of problems common to teachers of the three levels of education.

TABLE II

FREQUENCY OF PROBLEMS REPORTED

Type of problem	Educational level: Elementary school		Junior high school		Senior high school		All levels combined	
	Frequency	Per cent of total	Frequency	Per cent of total	Frequency	Per cent of total	Frequency	Per cent of total
Motivation	171	17.2	132	30.9	262	32.6	565	25.4
Testing and evaluating	161	16.1	62	14.5	136	16.9	359	16.1
Diagnosing and correcting difficulties	169	17.0	31	7.3	67	8.4	267	12.0
Modes of presentation	109	10.9	53	12.4	80	10.0	242	10.9
Individual differences	153	15.3	28	6.6	49	6.1	230	10.3
How to study	27	2.7	24	5.6	34	4.2	85	3.8
Transfer of training	24	2.4	16	3.7	37	4.6	77	3.5
Relationships with administration	36	3.6	11	2.6	26	3.2	73	3.3
Lack of materials and equipment	25	2.5	9	2.1	30	3.7	64	2.9
Curricular and extra-curricular activities	32	3.2	10	2.3	14	1.8	56	2.5
Thoroughness and mastery	33	3.3	9	2.1	12	1.5	54	2.4
Discipline	10	1.0	21	4.9	22	2.7	53	2.4
Pupil participation in class	13	1.3	12	2.8	18	2.3	43	1.9
Guidance	8	0.8	5	1.2	12	1.5	25	1.1
Racial differences	20	2.0	3	0.7	0	0.0	23	1.0
Parent-teacher relationships	6	0.6	1	0.2	4	0.5	11	0.5
Total	997	99.9	427	99.9	803	100.0	2227	100.0

RANKING OF MAJOR PROBLEMS ACCORDING TO EDUCATIONAL LEVELS

Type of problem	Educational Level: Elementary school	Junior High school	Senior High school	All levels combined
Motivation	1	1	1	1
Testing and evaluating	3	2	2	2
Diagnosing and correcting difficulties	2	4	4	3
Modes of presentation	5	3	3	4
Individual differences	4	5	5	5
How to study	9	6	7	6
Transfer of training	11	8	6	7
Relationships with administration	6	10	9	8
Lack of materials and equipment	10	12.5	8	9
Curricular and extra-curricular activities	8	11	12	10
Thoroughness and mastery	7	12.5	13.5	11
Discipline	14	7	10	12
Pupil participation in class	13	9	11	13
Guidance	15	14	13.5	14
Racial differences	12	15	16	15
Parent-teacher relationships	16	16	15	16

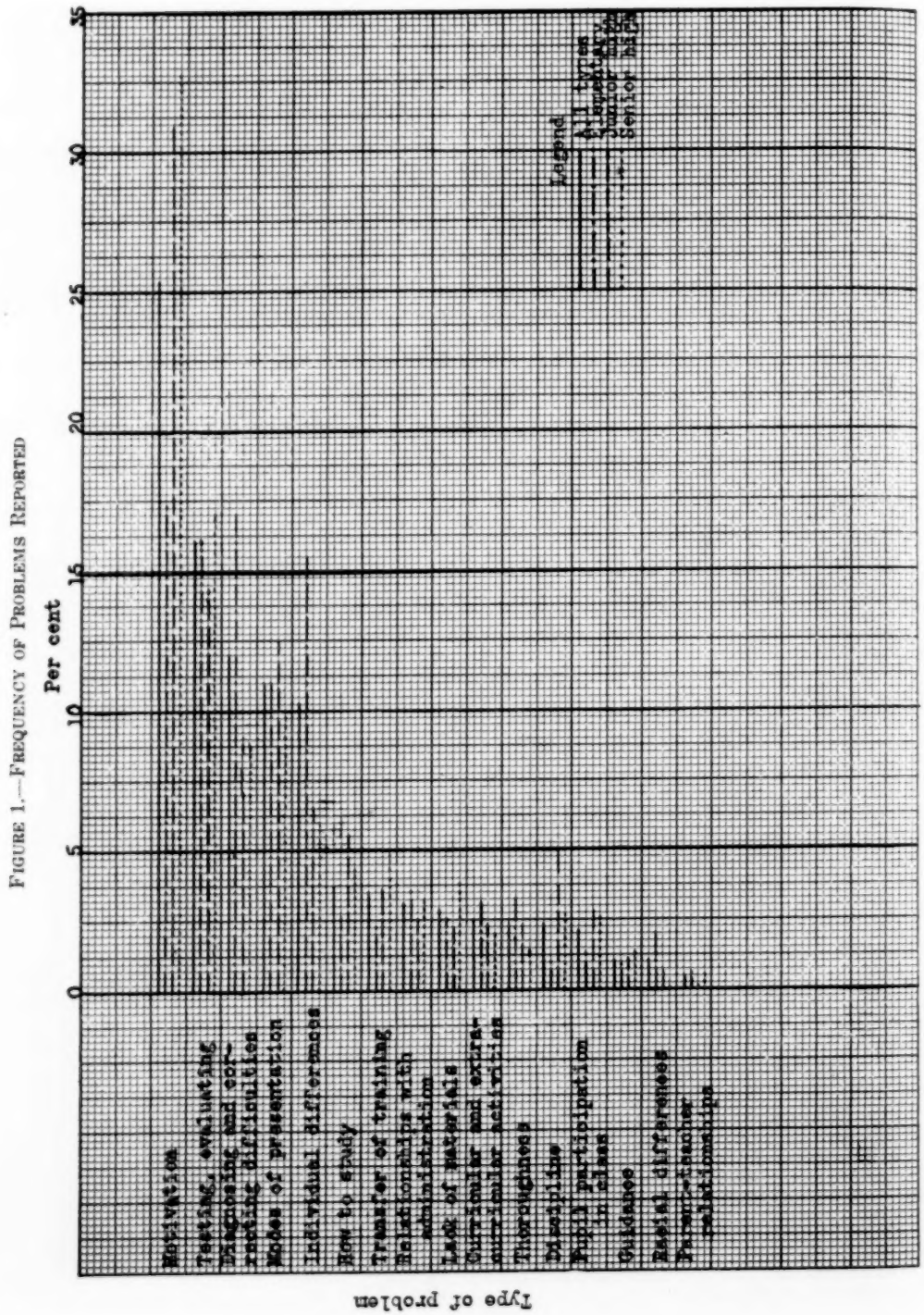

FIGURE 1.—FREQUENCY OF PROBLEMS REPORTED

school, also call attention to the fact that in the typical school the idea seems to prevail that if a pupil does not like a subject, he is supposed to drop it and elect another. The techniques and philosophy of the so-called newer education are sometimes referred to as being a menace to the school's integrity. Some teachers, on the other hand, do not criticize the newer education, but place particular blame upon the present generation of pupils, who appear as a group to be indifferent toward learning or, at least, to set their aims no higher than merely to "get by". Typical of the attitude expressed by several teachers is the comment of a teacher of Latin with 35 years of experience:

> Motivation—not for making children want to learn, but making them desire to put forth effort to learn. They have a desire for knowledge, but they wish it to be presented to them by the teachers rather than to exert effort to acquire it for themselves. My classroom schemes for motivation are not sufficiently attractive to compete with the cinema, radio, and other external agencies which teach with facility and entertainment.

A teacher of biology, who has had 26 years of teaching experience, writes:

> The right kind of motivation is difficult. Too many want to learn just enough to make a passing grade and do not work up to capacity. They are slow about collecting data and drawing conclusions—they want to get the answers out of a book.

Some teachers not only call attention to the difficulty of getting pupils interested in their own subjects, but deplore the lack of interest in life itself. One such teacher writes:

> The primary problem of education is interesting the students in life in general. It is not making them want to learn. It is a problem of getting them interested in anything. There are too many drifters in school and out.

A high school teacher, who has six years of teaching experience, says: "The apathy of the modern student, I think, is appalling. I think harder and more fundamental work is the only solution."

With a similar attitude, another teacher says:

> In all too many cases, the attitude of the pupil—an attitude reflecting the philosophy of the society in which we live—is passive. The pupil seems to be saying: "If I attend school here for a certain number of years, I shall be graduated. Any effort put forth in the meantime must be put forth by the teacher."

Motivation as related to specific subjects receives a large share of comment. A beginning teacher of social science says: "From the pupil's point of view, education is such a matter-of-fact and taken-for-granted process that I find that any subject matter must constantly be presented in novel form." Similarly, a beginning teacher of English and Latin believes that too many pupils feel unable to rise above their present status in life and states that she has difficulty in stimulating a desire to do so.

An English and art teacher, with three years' experience, thus states her problem:

> The question that comes to my mind most often is—do present-day educational methods tend to "coddle" our present youth too much? The majority of students faced by a fairsized problem or assignment try to find a means of evading it.
>
> Have we as teachers—in order to motivate pupil interest and likes—tended to be too easy? Or has the mental efficiency of pupils declined, or is life too full or busy for pupils to devote more time and energy to study?

A teacher of English and French, with 26 years' experience, writes:

> Motivation—making children want to read with more understanding (English–10th). They seem to have the background of reading with hazy notions of vocabulary. It is remarkable that their comprehension is as high as it is, and not at all surprising that it is often not as high as it should be.
>
> —making children feel that slipshod, extremely informal speech is not admirable ordinarily. The exceptional student who uses a wide vocabulary and expresses himself adequately is heard with contemptuous smiles and is obviously considered conceited, attempting to be sensational. The importance of how an idea is expressed seems to be largely overlooked all through the child's school training.

A teacher of English and Latin, who has taught 18 years, says:

> Motivation seems to be my most difficult teaching problem. Pupils do not care whether they learn or not; they are extremely careless in their work; and they do not think. I believe the curriculum, textbooks, and teachers are all at fault.

Deploring the fact that subject matter is often meaningless to pupils, a beginning teacher of social science comments:

> I find difficulty in getting the pupils to realize the importance of the subject in making use of it in the future, that the present situations have developed from the facts, that we have to study in order to understand the existing conditions of today, and then look back and see that things did not just happen, but that they came through gradual development.

The difficulty in motivating the poor student is, according to replies, particularly acute. Many teachers state that, although they find motivation difficult in the case of pupils in general, it is especially difficult in the case of those who are dull. Typical of the replies of high school teachers is that of a beginning teacher of English and journalism, who says:

> Motivation is a problem, particularly in dealing with the poorer students in my English classes (English is required) and in the journalism class, which includes some students who are failing in English and should never have been put in a journalism class—they are largely there for the sake of convenience in arranging class schedules. They frankly tell me that they were never interested in journalism but wanted to take shop or home economics.

The discussion of motivation as a classroom problem may be concluded by presenting the views of two junior high school teachers. One, with 13 years of experience, writes:

> One of my most difficult problems in my slow groups is getting the children to want to learn. They become interested and work for a while. I find them interested in material far below their grade level.

The significance of individual differences in relation to what pupils may be interested in appears in the reply of the other teacher of social sciences:

> The interests of the group are very diversified. To interest all of them in the curriculum is quite difficult at times. Lack of interest leads to discipline and inattention. To devise a schedule which interests the group and still teach mostly cut-and-dried curricular subjects seems to be one of my main problems.

In the summarization of the trends in Table II, it is shown that motivation accounts for 17.2 per cent of the problems of elementary teachers, 30.9 per cent of those of the junior high school level, and 32.6 per cent of those of the senior high school level. No attempt is made to explain why problems of motivation increase in frequency with ascending educational levels. It may be that at the lower level motivation through utilization of activities is readily possible or that the subject matter at that level is not expected to involve extremely complex types of thinking and to require intensive motivational effort, with complex life situations as the focal point. On the other hand, pupil interests become increasingly diversified at the senior high school level, where individuals also are more keenly aware, relatively speaking, of the significance of living and likely to assert themselves in the selection of subjects they will learn. Explanation of the apparent rise in importance of motivation involves considerable conjecture. Yet, if the decline in the success of motivation is real, it would indicate that a significant educational problem exists: Are our schools less effective at the upper levels than at the lower, and what may we do to increase the willingness of high school pupils to learn?

2. *Testing and Evaluating*

The problem of testing and evaluating ranks second in importance among the replies of junior and senior high school teachers, and third among those of elementary school teachers. Of the total problems reported on each level, however, approximately the same percentage of replies was received from the elementary group as from the other groups. The problem, therefore, seems to be of almost equal importance for all types of teacher. In

assigning reported problems to this category, all devices and means at the disposal of the teacher for evaluating classroom work, whether formal or informal, written or oral, were recognized.

Following the category of general or unclassified problems, the construction of tests and setting up of instructional objectives constitute the basis of the most frequently recurring problems for all educational levels (combined). It appears that teachers are interested in the improvement of classroom tests and examinations, not only from a technical standpoint, but from that of what they should measure with respect to pupil attainment. There is a high degree of interest in questions of how tests should be administered and of what use should be made of test scores. There is also the closely related problem of the basis of marking.

Many teachers, in commenting on testing, pointed out the need for constructing tests for their own purposes. Some argued for a uniform system of testing, others thought many tests were too difficult, and still others believed that the typical new-type test failed to measure anything more than superficial knowledge. A teacher of the elementary grades says:

> There should be a uniform system of testing. I feel that standard tests should be used in all subjects, in all grades, and that every class and every grade should have definite, prescribed objectives to be accomplished. My chief difficulty this year has been to formulate objective tests over the material which we have covered.

A novel angle of the problem of constructing tests is brought out by a teacher of high school science with two years of teaching experience, who writes:

> Then I sometimes wonder whether I am making tests too difficult. Perhaps constant low grades are the result of too difficult tests. I give quizzes frequently, trying to relegate testing material to small dimensions; but that does not seem to work. I find that if I ease up on daily work, the pupils will ease up on their preparation in direct proportion, with the result that their grades are constantly poor. Again, it brings up the question of grades. Are grades as we now know them satisfactory? I believe that I am inclined not to take into account individual differences in pupil attainment. How can we standardize these differences other than by I.Q. "tests"?

A superintendent of a small school and teacher of Latin and commercial law, who has 38 years of teaching experience, says:

> In my opinion, any teacher who knows his subject and tries to put it over can write a fairly comprehensive set of questions that will really test a pupil's knowledge and comprehension. However, it seems to be becoming more and more prevalent for authors of textbooks to make tests and sell them with the texts. Most of them are true-false, multiple choice, selection of words from a list, or filling in a word in a blank. They are so suggestive of the answers or offer so much opportunity for a good guess founded on a shred of information that almost anyone with ordinary intelligence can make a high grade with little study or effort. The pupil will come out with a grade of 80 or 90 when he knows, and the teacher knows, that his knowledge is very superficial. If anything can be harmful to the pupil, it is encouragement to expect ninety-dollar pay for sixty-dollar work.

Many teachers, particularly in high school, indicate problems in evaluating achievement in special subjects such as art, music, physical education, etc. A teacher of art writes:

> Evaluation of art work—determining the difference between children who have no talent and those who are afraid to try because they expect too much—is my biggest problem. This problem applies to all subjects which emphasize means of expression.

A teacher of music and health in the elementary school, who has 7 years of teaching experience, says:

> Testing and evaluating in my work are weak. The necessity for public appearance —a most valuable part of a child's training in music—takes so much time in perfecting that no time can be spared for teaching technical material on which tests can be based. Some progressive friends have suggested that music should be just for fun anyway. Possibly they are correct; but if our plans could be perfected to such a degree that truly excellent teaching was

> the usual rather than the exceptional mode, music would fill as important a position as the social studies program. In fact, it ties in perfectly with all subjects taught in the school where I am teaching. Too little time will always be the cry at all times where perfection of detail for artistic performance is a requisite for success.

Some teachers state that they would like to know more about the uses of tests, whether they should be given for the purpose of guidance or for the assignment of marks or enforcement of standards. A teacher of social science in the junior high school, who has 3 years of teaching experience, says:

> Are study questions and frequent tests good ways of making students learn material? What are the best types of test for science, for history in the grades, and for geography?

A teacher in the elementary school with 22 years of experience raises a question as to the value of tests—how to use them effectively. She writes:

> My hardest problem is that of getting the most value out of tests, due chiefly to lack of time. We do not, therefore, have many tests. Instead, an effort is made to so stimulate the imagination through word pictures, dramatization, etc., that the pupil will work for himself.

Perhaps of all the problems commented upon in detail, that of marking and marking systems ranks first in interest and difficulty. Most teachers, if they mention marking at all, speak of the dissatisfaction with the prevailing marking system. A beginning teacher of high school English writes:

> I find it difficult to assign a definite mark for work because I do not feel that marks sum up the amount of energy that a child puts forth. Nor do they indicate how much the child has gotten out of a course. One child in the 9th grade is interested in class, tries hard to do the homework, and does not present disciplinary problems. However, his marks are not passing (numerically), but he knows more about outside material than the other children. This case shows the difficulty I have in putting down a grade for such a student.

Several teachers commented on the difficulties encountered in marking where there is a wide range of ability within a class. A high school teacher of English, who has three years of teaching experience, says:

> A wide range of ability plus variation in individual effort presents a difficult problem. On which should one put greater emphasis in grading—effort or ability—or in what proportion? Can a teacher really judge the effort a student puts forth or measure with any degree of accuracy the value a student gets from a course?

A beginning teacher of English and Latin in a rural community in which there are many foreign-speaking pupils says:

> There is a sharp difference in mental ability between the two rather opposed groups of children in our school. It makes it difficult to evaluate achievement and to mark fairly when both groups must be taught in the same class.

Another aspect of the problem of marking is discussed by a beginning teacher of geometry, who writes: "Should the duller students be continually flunked if they cannot and do not master the material covered?"

Many teachers comment specifically upon the system of marking, A, B, C, D, etc. A high school teacher of mathematics, who has had 6 years of teaching experience, states the problem as follows:

> It seems to me that our present A, B, C, D, etc., system is a total failure—that it does not tell the parent what he should know about the child's work. Grades as such mean little without a great deal more to go with them in the matter of interpretation. We need more teacher-parent discussions in order to diagnose difficulties that the pupil faces—more teacher-parent discussions and less time spent on marking and grading tests.

A further comment on this same problem is made by a senior high school teacher of history and mathematics, who has 5 years of experience:

> My greatest problem has been in the field of testing and evaluating. I feel that grades as a whole are not standard. Therefore, they have no specific value. My

grade of A would mean the same thing to me that another teacher's grade of B would mean to her.

Also teachers appear interested in the functional aspects and philosophy of testing. There is a tendency for teachers to be critical of their own testing practices, to a greater degree than of technicalities of measurement in education. Their aim is to make the evaluation of achievement serve a purpose and to have greater significance in the measurement.

3. *Diagnosing and Correcting Difficulties*

Problems connected with diagnosing and correcting pupil difficulties rank second in importance on the elementary school level, representing 17.0 per cent of the problems reported. Such problems rank fourth on the junior high school level, constituting 7.3 per cent of its problems; and fourth in the senior high school, where 8.4 per cent of the problems are concerned with aspects of diagnosis. One is tempted to speculate on whether these differences indicate that diagnosis is more successful at the junior and senior high school levels and, therefore, presents fewer difficulties for teachers, or whether instruction at these levels is simply less concerned with diagnosis. All that we can safely say, however, on the basis of the evidence, is that junior and senior high school teachers report fewer diagnostic problems.

Although teachers referred to some extent to the general problem of determining difficulties and providing remedial treatment, the problems were concerned more with specific school subjects, such as arithmetic and reading in the elementary school, and history and science in the high schools. Reading difficulties are frequently mentioned in connection with other problems. A number of teachers listed problems dealing with the use of the results of diagnostic tests, and how to plan remedial work on the basis of what the tests indicated. Problems of diagnostic testing were fewer than those dealing with the use of test results. It should perhaps be noted that problems dealing with the analysis of reading difficulties were more frequently reported than diagnostic testing problems.

Poor reading ability is believed to be responsible for a large share of the difficulties of pupils at all educational levels, obviously because pupils are obliged to secure a great part of the essential information in a given subject by means of the printed page. If the pupil does not learn the mechanics of reading, so as to read rapidly and at the same time with comprehension, his time and energy are wasted through needless re-reading and repetition. Unfortunately, after he leaves the elementary grades, there is usually little opportunity for him to receive further specific instruction in reading; and so the handicap of poor reading ability tends to persist and to lower his general efficiency. A fifth grade teacher, with 15 years of experience, comments as follows:

> Reading problems are ever present. There is no transfer of training in reading, for example, as silent study to geography, history, language, or any subject in which reading to learn is the important factor. Rapid reading with much guessing of answers, inability to read directions accurately, inability to summarize or incorporate facts as part of the thinking problem, or a general application of the facts to the end of answering reasoning questions, and failure to associate words with their own experience, as well as inability to gain words from context or known parts of the word.

A teacher of the second and third grades, who has 6 years of teaching experience, discusses lack of ability to read as follows:

> Lack of ability to read comprehensively —this I have found especially true in the 6th, 7th, and 8th grades. It seems to me that it is at this level where so often the children have not yet sufficiently overcome faulty reading foundations so that they can at least help themselves a little; some stop schooling here, others get a slight glimmer and go on crippled through high school. I attribute this to improper, inadequate, or lack of seatwork and testing in lower grades, which I believe, when correctly and conscientiously administered, is one of the main steps in getting independence and accuracy on individual parts as far as gaining knowledge by themselves is concerned.

A teacher of social science in the senior high school, who has taught 3 years, writes:

> Most students can't read. The work means nothing to them and frequently they do not get the meaning of what they read. They get very queer interpretations of

questions, and copy answers at random whether they fit or not. Why? Where is the failing of modern education? Is it because of phonics and the new method of teaching spelling? Is it because too much stress is placed on extracurricular activities and too little on the three R's?

As already stated, there is the problem of diagnosis of difficulties in specific subjects, each in a sense representing a slightly different set of problems and having its own remedial treatment. A teacher of social science in the junior high school with 13 years of teaching experience says:

> The diagnosing of difficulties in social science is a big task because of the breadth of the field. I believe the skills necessary in this work can be taught more quickly and efficiently if opportunities which arise in reading, in spelling, in languages, etc., can be utilized. A great many children in my slow groups do not know how to find the section or the lines or words that answer a guide question, little or not at all in solving problems. Their elementary skills must be taught over and over.

A fifth grade teacher, who has 15 years of teaching experience, in commenting on difficulties, says:

> In arithmetic and spelling, checking is not meaningful. If the pupils can get the answer to coincide with the problem as it was before solution, it is done at any cost whether it checks or not. Just the idea of getting something. Long division is a big problem. Tables are applied; larger numbers are subtracted from smaller ones; zeros are placed in the quotient regardless of necessity; subtraction is completed only in units and tens columns; and division is attempted whether a number is brought down from the dividend or not.

A number of problems relate to diagnosis of difficulties experienced by pupils in the comprehension of textbook materials and the correction of such handicaps. A typical comment, made by a fifth grade teacher with 10 years of teaching experience, follows:

> I am most concerned with giving the child meanings to read with. Most of the texts used, particularly those in the social science field, have vocabularies so far beyond the child's understanding that they seem to be written in a foreign language.

Some of the difficulties in connection with remedial work are pointed out by a fifth grade teacher with 7 years of teaching experience:

> After the difficulty of a class has been diagnosed in a certain subject and the remedial work upon which most have profited has been provided, weaker pupils still seem to be at a loss. I attribute the cause of this to failure of these pupils to gain enough background for the grade intended. Complications enter in when a teacher takes time out from the remainder of the class to drill on work several grades back for the benefit of a half dozen students whose ages entitle them to be in a grade more difficult than they are able to undertake.

4. *Modes of Presentation*

Problems of presentation rank fifth at the elementary school level, and third at the junior high school and the senior high school levels. That the question is significant on all levels is demonstrated by the fact that this class of problems ranks fourth in the total number of problems reported, by all school levels combined.

A wide variety of subordinate problems fall into this classification, such as, that of which sense modality—visual, auditory, etc.—is most effective, adapting materials to individual differences, presenting new materials so that they will be interesting and easily understood, preparing pupils for new materials, organizing subject matter for class discussion, the most effective method of teaching—whether lecture, demonstration, class discussion, blackboard work, level of difficulty, use of tests as means of instruction, etc. The general problem of presentation is characterized by a supervisor of student teaching who writes:

> I believe the greatest number of difficulties that my student teachers encounter lies in the field of presentation. I find that well-organized lessons often fail because of weak presentation. Even planned ways of getting the students' interest often fail *because* teachers do not overcome their problems. Of course, the place to begin our work is with the organization of the

material to be presented; until this is well planned, it is useless to work on ways of presentation.

On the basis of replies, it appears that each subject presents its own difficulties and problems of presentation. A beginning teacher of the third grade states:

> Especially in presenting signed numbers is where my greatest problem has occurred. After drawing diagrams, illustrating with dollars and cents and all other means I could think of, there were still some who did not have the faintest conception of what it was all about. They recite the rules and apply them, but cannot seem to grasp just why they are true.
>
> Also, in graphing, certain rules were laid down which would make study more logical and insure greater accuracy. The rules were easy to grasp, but the students still failed to see why certain things were done and failed to follow out the rules. No doubt experience will provide aids in overcoming these difficulties, but at present I seem to use every means at my disposal to present material in a way that can be grasped and still some do not see even the elementary things.

A high school teacher of English, who has 3 years of teaching experience, lists the following as problems which occur in her work:

a. Finding current material to present in class.

b. Tendency to fall into routine methods of presenting literature, particularly in lower levels of English classes.

c. Problem of making discussions general, not for two or three of superior ability.

d. Problems of extending knowledge and rules in class into other classes and outside contacts.

A beginning fourth grade teacher states her problems of presentation as follows:

> How to plan material so that it will be equally interesting to both the slow and the fast pupil. How to present history when the textbook seems to be above the fourth grade level without reading the material orally with the children. Is this a good idea? It gives the children opportunity to read orally, and helps them by constant repetition, to pick out the important idea of each paragraph, to read for thought rather than word.

Some teachers speak of the difficulty encountered in not having sufficient supplementary material. A high school teacher of history, who has 2 years of teaching experience, writes:

> One difficulty is the presentation of material when the only source of material is one textbook, for example, history. It is difficult to find new ways of presenting material, making assignments when there is but one book to refer to. It is impossible to use the unit plan under such circumstances. Yet, all the journals, all educational meetings deal only with variations of the unit plan. No ideas are given, no aids advanced to those who lack facilities to use the unit plan. I should appreciate your opinion on this matter.

Another problem is that of organizing subject matter. A senior high school teacher, who has 10 years of teaching experience, states her problem as follows:

> My philosophy of teaching my particular subject is that students should actually experience reading, writing, and speaking, rather than that they should have knowledge about the English field. Since I teach English of the eleventh year, I am constantly questioning chronological organization, type organization, interest organization of subject matter. Which one will produce the greatest amount of growth of experience?

A high school teacher of Latin and social science, who has 5 years of experience, says:

> My chief difficulty seems to be the finding of sufficient supplementary material. Especially is this true in Latin. Another text is not the solution. I feel the need of a handbook of drill exercises or rules of syntax as practice material in second-year Latin, of more easy material in beginning Latin.

5. *Individual Differences*

As Tables I and II show, the problem of recognizing and providing for the wide person-to-person differences has a high fre-

quency in the case of all teachers, whether in the elementary school, the junior high school, or the senior high school. The frequency would probably be even higher, if the factor of individual differences in connection with other problems had appeared more significant than the problems themselves, so as to warrant the tabulation of the problems in this class instead of in another. Some of the specific aspects of the problem of individual differences include planning for individual differences in the recitation, organizing remedial work in widely differentiated groups, arranging time to treat pupils as individuals, planning special work for pupils having poor background, and teaching the same materials to all regardless of ability. Some aspects of the problem are set forth by citing typical statements of the teachers themselves.

One of the most commonly stated problems, to use the language of an elementary school teacher of 3 years of experience, is ". . . the problem of making progress with very slow students and of keeping the better students interested and busy." A beginning teacher of high school mathematics says:

> Providing enough material for the bright pupil and yet not having him think he has to do so much more than the other students. Whether to cover the subject matter as fast as the bright pupils can master it or hold back the bright pupils for the dull pupils. In large classes how to find enough time to give the students the individual instruction which is needed.

The difficulty encountered in teaching a class whose members vary widely in ability is described in a statement made by a beginning teacher of Latin and English, who says:

> Parallel with this difficulty and more pronounced in the Latin class than the problem of motivation is the difficulty of teaching a markedly heterogeneous group. The curve in my Latin class is in reverse: half high A's, a third F's or D's, and a sprinkle of C's and B's. In the other class the distribution is more nearly normal, but the range is wide. If I explain "Who, Whom", for instance, till the slower ones begin to get the idea, the better ones are bored or misbehaving. The largeness of the class—30 to 35—and the absence of independent study materials such as work books, at which students could work at their own rate of speed and which could be supplemented by enriching materials according to individual abilities, increase the awkwardness of teaching.

A teacher of high school English, who has 15 years of teaching experience, summarizes her problem in the following statement:

> Because the classroom teaching load is so heavy as to take up most of the teacher's time and because the student's schedule is full and complicated, there is little opportunity for conferences between pupil and teacher on individual problems. Moreover, it is a physical impossibility for the teacher to read any considerable number of student compositions. More written work by the pupil, checked by the teacher, and then discussed by pupil and teacher could be used as an effective teaching device.

In listing the recognition and provision of pupil differences as a problem of teaching, many teachers assert that they could accomplish a great deal more if their classes were smaller. In some subjects, and particularly in the elementary school, provision for pupil differences is undoubtedly a serious problem. On the other hand, in the case of some high school subjects, especially those requiring a great deal of reading and where lecturing is the rule, it is doubtful, however, whether some teachers would conduct their classes differently even though classes were smaller. The chances are that many of them would use the same methods of teaching in small classes that they now use in large ones, that is, lecturing. Research findings on the question of the effectiveness of learning under conditions of large and small classes are not convincing, but accepting results of some investigations at their face value, it would appear that there is little difference between the quantity and quality of learning under large and small class conditions, the implication being clear that teachers do not teach differently under the two types of teaching condition. It would probably be fair to say that teachers who have the time and desire to teach individuals get results under any conditions.

6. *Problems With Varying Degrees of Significance*

There remain a number of problems having relatively low frequency of occurrence, such as transfer of training, how to study, participation, thoroughness, curricular and extra-curricular activities, guidance, racial differences, etc., some of the more important of which will be briefly discussed.

a. *How to Study*

Several teachers called attention to the need for better study habits by pointing out that pupils do not know how to study and to concentrate. Typical comments tell the story:

1. Teaching the students how to study is also a constant problem.

2. Difficult for my students to concentrate for any period of time upon a task at hand.

3. Inability to think through problems—they may do drill exercises quite well; but when a thinking problem is interposed, they are lost.

4. Particular aversion to taking books home to study.

5. Securing sufficient pupil preparation. This is due only in part to lack of interest. Part of it is due to an excess of activities and a dearth of time. All school activities or nearly all must be crowded into the school day. Little can be done in the evenings.

Several teachers also stated that their pupils cannot read efficiently.

b. *Transfer of Training*

How to teach so as to insure transfer of training received considerable attention. Some of the comments on this problem and on its significance are:

1. How to instill in the child simple and desirable social habits that will function and carry over into society—not just in school—or when the teacher is around.

2. To get students to carry over and use facts learned in other classes and previous problems in solving new problems.

3. It is difficult and at times impossible to make the work practicable—applied to daily life.

4. Developing a feeling among my students that what they are studying is not an isolated, unrelated, cold, abstract subject, but has an immediate and related utility value.

c. *Curricular and Extra-Curricular Activities*

A number of teachers stated that one of their major problems was that the curriculum was ill-adapted for their purposes, either being too difficult for some pupils or impractical for the purpose. A social science teacher, who has 3 years of teaching experience, says:

> Reorganization of the curriculum to vitalize it—it is the old, old problem, but students are more and more critical—hence, motivation is difficult, especially since I myself share their attitude toward much of our curriculum. Not minor changes but reorganization.

The problem of supervising extra-curricular activities, in addition to carrying a heavy teaching schedule, caused several teachers to comment at length. Some raised a question as to the value of extra-curricular activities; others complained of the amount of time necessary for their supervision. The comments which follow describe the situation:

> Sponsoring of activities demands time that could be used in testing, grading papers, etc.
>
> To what extent should extra-curricular activities be incorporated into the formal curriculum? Are there criteria by which one may determine the educative value of various activities, or extra-curricular activities? We are teaching so many extra-curricular activities that it is difficult to find time enough to do the regular work.

A teacher of mathematics and science, who has 6 years of teaching experience, says:

> We teach so many different subjects. Each teacher has not less than two classes in the same subject each day. Five or even four classes each day in as many different subjects is too many for any teacher to teach well. Extra-curricular activities must be managed also.

A beginning teacher of commercial subjects says:

> The problem of teaching two classes and also supervising study hall, all at the same time, has caused me a great deal of trouble.

> To add to my difficulties, I frequently supervise the cutting of a stencil or the operating of a mimeograph machine at the same time I am teaching a shorthand class and supervising a small study hall. How can this be accomplished without neglecting some of the material which should be presented to one or both classes?

A fourth grade teacher, who has 16 years of teaching experience, says: "Too many unplanned-for interferences for both pupils and teachers, resulting in lack of time to make adequate plans and to 'put over' what is planned."

Similarly, a sixth grade teacher with 20 years of experience says: "With the number of subjects in the curriculum, my chief difficulty is trying to teach thoroughly a large amount of subject matter."

A sixth grade teacher with 25 years of teaching experience raises the question of how to teach thoroughly in the face of a large number of subjects, as follows: "To find time for the *thorough* teaching of *all* subjects in the curriculum, and for special school activities."

A beginning first grade teacher says: "Curriculum overcrowded and too many outside demands."

A teacher of English and journalism with 3 years of experience states: "The number of outside activities makes it difficult for students to give school work the concentration it should have."

A fourth grade teacher with 32 years of experience summarizes her point of view and lists her activities in the following statements:

> My regular class periods are disturbed by extra-curricular activities and clerical work. The following are a few of the activities that we are expected to sponsor:
>
> 1. Books are loaned on a fee basis. We supervise filling out of three cards for each pupil; keep a record of the number of books.
> 2. We make duplicate records of each pupil's history. Grades must be recorded in several books, and also on report cards.
> 3. Money is collected for Red Cross, anti-tuberculosis seals, entertainments, etc.
> 4. Forty-five minutes each week is devoted to instruction to the Safety Council. We also teach rules for the Bicycle Riders Club.
> 5. Much time is devoted to the May Fete.
> 6. The Christmas Sing takes much time. We taught the words and music of seven songs.
> 7. A daily plan book is kept. We write what is to be accomplished in each subject.
> 8. We have no workbooks. All the tests and examinations must be written and taken off on the hectograph.

d. *Thoroughness and Mastery*

Tables I and II indicate that several teachers listed teaching for thoroughness as a major problem. Some stated that it was difficult to hold pupils to any task long enough to make them master it; others commented that pupils seemed to glide over material without the slightest idea of the meaning of what they had studied, and yet they were satisfied with their performance. How to teach for mastery was indirectly hinted in a number of other replies not dealing specifically with this problem. A junior high school teacher, who has 6 years of teaching experience, states as a major problem:

> Demanding mastery of material before going on to new material. We try to teach too much with the result that material is not mastered.

This idea is also reflected in the statement of another teacher, who writes:

> Securing mastery of subject matter and adequate coverage of the course. For some time it has been my theory that we teach too superficially. But an attempt to demand what I consider adequate mastery results in too few topics covered. I may add that at least I have believed that I am an average teacher—may be better.

Associated with the problem of thoroughness is that of supplying background for the student. A high school teacher of English and Spanish, who has taught 11 years, says:

> The problem which I face every day, as no doubt all teachers do, is the task of supplying a background for the student in order to enable him to do his daily work.

> Lack of ability to do the work of his grade usually tends to cause a student to develop into a "problem child".

A fourth grade teacher with 10 years of experience says that there is:

> So much to teach (facts, skills, subjects) that there is no time for mastery, especially with slow students. This lack of time or overcrowding leads to too little review and drill.

e. *Lack of Materials and Equipment*

Not a few teachers, especially those of special subjects such as music, art, shop work, etc., indicated that lack of source materials constituted a major problem. Likewise, many mentioned poor or inadequate library facilities and equipment as problems with which to reckon. Much of this difficulty arises because of the inability of the school to make appropriate provisions, and it is not always possible for the teacher to do much toward remedying this inadequacy. A high school teacher with 6 years of teaching experience comments: "We have the bare necessities and could accomplish more if we had more financial aid so that we could furnish more and better equipment." A high school teacher with 5 years of experience names as a difficulty: "Lack of supplementary material—owing to limited supply of library and laboratory facilities and available space." Another says: "Lack of up-to-date books, reference materials, and sufficient room space makes presentation difficult."

f. *Discipline*

Problems of discipline are classified as those relating to pupils in general and those relating to individual pupils. There were also a number of problems which could not be classified under either of these headings. A fifth grade teacher with 20 years of teaching experience questions the "new freedom" in the schools as follows:

> I find that with all the many good things coming out of this new freedom in the school there are also some bad. For one thing children do not know how to listen to or follow directions. How can any material be presented to a class satisfactorily if all are allowed to do as they please and no respect for law or order shown? I find plenty of problems of this sort every year. I believe in some order in work myself. I visited in a training school in New York last summer and I found all the teachers there were facing the same problem.

g. *Pupil Participation in Class*

Ranking relatively high in frequency of occurrence is the problem of pupil participation—a problem which is more common at the junior and senior high school levels than at the elementary school level. Some of the subordinate difficulties mentioned under this heading include: promoting participation from all pupils, striking a balance between pupil and teacher participation, and securing orderly discussion. Some typical problems mentioned are illustrated by the teachers' comments. A beginning teacher of algebra writes:

> How to make more pupils enter into class discussion—no doubt that is a question that many teachers have. Always there are a few who carry the burden of the recitation. The rest either do not know when called on or are afraid they will be ridiculed for a wrong answer. How can I draw out those who know but who are afraid? The ones who do not know probably never will and are a motivation problem.

That it is hard to get pupils to participate in class discussion is attested by the following comments on needed solutions or difficulties encountered:

> 1. A plan to instill interest so that every member of the class will recite. At present it seems that you can rely on just a few in the class rather than the whole class.
>
> 2. How to organize classroom discussion in large classes so that all may feel responsible for contributions, and all may take part.
>
> 3. Unable to get students' interest in class discussion.
>
> 4. Being a successful leader of discussion so that students will not feel supremacy or domination of the teacher.

Securing orderly discussion is the problem of a beginning teacher of the eighth grade, who teaches several subjects:

> I find it difficult to keep noise down and still give everyone a chance to express himself concerning current problems. I believe there should be a busy hum in a classroom rather than a dead military silence. But to keep the noise down and not disturb others when something exciting comes up is a hard job. As hard as it is, though, I still believe it is worthwhile trying to do it.

h. *Guidance, Parent-Teacher Coöperation, and Racial Differences*

Some teachers stated that one of their problems was in helping students to solve their personal problems. A teacher of English and journalism writes: "A chief problem which is always before me is that of how to help students to work out personality problems—motivating children to want to improve."

There is also the question of parent-teacher coöperation, as shown by these statements: "Lack of education on the part of parents often causes attitudes which affect adversely students in our school;" and "inability to get coöperation from parents whose children are doing poor work either because of low ability or lack of effort."

Finally, there is the problem of racial differences which is experienced in varying degrees by teachers in many parts of the country. In Colorado, there is specifically the problem of bilingualism growing out of the fact that there are in some sections of the state occupations attracting an ingress of Mexicans; and over a period of years some communities have become populated with a large number of Spanish-speaking families. As a rule, Spanish-speaking children are retarded in school, experience difficulty in speaking and writing English, and are still further handicapped by the fact that their parents generally do not speak English in the home.

7. *Conclusions and Discussion*

The problems listed and classified probably do not represent all or even a majority of the problems of the public school teachers sampled. The data sheets called for those problems *"which occur again and again in your own work,"* thus placing limitations on the number and variety given. Some teachers not only listed problems, but amplified them by detailed descriptions of what was meant. Obviously, it was the statements of such teachers which proved to be most illuminating.

The cumulative picture presented by analysis of the results is somewhat negative and pessimistic, but it must be remembered that the study dealt with problems and difficulties. The writer, who read all the replies in detail, believes that the analyzed data and the impressions received from his reading warrant the following conclusions:

a. *The problem of making children wish to learn, although it varies in frequency of occurrence upon different school levels (elementary, junior high school, and senior high school) occupies a place of major importance among the sixteen major problems listed.* It is not believed that any one is prepared to explain why this difficulty should stand out so prominently, although it is of course known that with psychologists motivation has been a research problem of primary importance for approximately ten years. Also, among the principles of newer education there are few, if any, which have attracted greater attention and emphasis than the importance of discovering interests and of motivating the learner. Teachers are constantly admonished that they must strive to recognize pupil interests and so adjust the educational program as to provide for the varying interests and needs of the learner. It does not, however, appear that we have made satisfactory progress toward the creation and development of interests through teaching.

Despite attempts of present-day educators to satisfy the needs and interests of pupils, teachers state that pupils still do not wish to learn or are at least reluctant to pay the price of learning. Our efforts to date to vary and modernize the curriculum and to respect the expressed wishes and desires of pupils have not resulted in the motivation that we expected. Also, it seems rarely to have occurred to psychologists and educators that, although the positive motivating influence of praise and encouragement is to be commended, pupils also become motivated through their own efforts as a result of overcoming obstacles and of doing a job well. It should be recognized that real learning is at best beset with many difficulties and that once a pupil has mastered a task he may become motivated through his own efforts. Suc-

cessful teachers (and it may be added, popular teachers) are those who require their pupils to put forth a great amount of effort and at all times hold them to high standards of achievement.

We have perhaps been making education so easy to obtain that opportunities for education are unappreciated. We, of course, compel children between certain age limits to attend school and for this reason feel obliged to do everything within our power to make the experience of schooling effective. On the other hand, since we do compel them to attend and often help feed and clothe them while at school, our attitude might well be more commanding with respect to what we may expect of them as pupils.

b. *Poor reading ability is a complaint of teachers on all levels of education from the first grade through the twelfth.* Inability to read with an adequate degree of facility and comprehension seems to remain a significant problem in spite of the fact that authors and publishers have made much progress in improving the quality and the motivating devices of books for the elementary and secondary schools, and in spite of a wealth of research on reading to be found in educational literature. The complaint about poor reading ability is also voiced by college teachers who state that their students are today so deficient in reading that it is difficult to teach any subject to such students. Comparisons between students of today and those of another era in terms of reading ability are not possible, for we have no comparable data, but it is evident that teachers and educators generally complain more today about deficiency in reading than at any other period in educational history. Can we attribute poor reading ability to the fact that we have today an unselected group of students representing a relatively low level of intelligence, as compared with a more selected group of higher intelligence of a previous era? Or shall we charge the deficiency to modern methods of teaching reading? Or shall we agree with the belief of some teachers that modern education is too soft and easy? Or is reading material today too difficult for the present-day pupil? (Several teachers stated that textbooks are beyond the level of successful mastery, despite the fact that textbooks for elementary and secondary schools, particularly elementary schools, are scientifically adjusted to the attainment and ability of unselected groups.) The causes are undoubtedly manifold, but there is, of course, the obvious fact that the schools of today deal with so wide a range of native ability that we may be assuming too much as to the educability of the typical youth. The unselectivity of the school population is becoming increasingly more difficult for educators at all levels to deal with adequately. It is, however, one thing to say that we cannot do anything constructive because of the weak pupils who come to us and another to say that each child will be required to do the best he can.

c. *Many teachers believe that the schools are so overcrowded with curricular and extra-curricular activities that it is impossible to do any job well.* It may be surmised that many other problems of which teachers complain can be traced to the obvious fact that the modern school is attempting to do so many things that it is impossible to do any one thing well. In a former era, our efforts were probably too closely focused upon the three R's. No one wishes to return to the type of education characteristic of this former era; in fact, we could not so return if we tried. New problems and new needs would prevent us from doing so, especially in the public schools. Nonetheless, school people would be wise to review their offerings, to decide what they wish to do well, and then proceed to do it.

It is believed that the basis for the criticism of current practice, made by both teachers and laymen, lies in the inability of the schools to accomplish their many aims with respect to both the varied program of curricular and extra-curricular offerings and the effort to develop what is commonly referred to as the "whole child." There would perhaps be much less criticism of poor reading, spelling, and language abilities, etc., if our curricular offerings could be narrowed within the limits of possible accomplishment. Also, it should be pointed out that, whereas the schools for centuries have been concerned mainly with the development of intellectual qualities, they are today attempting to provide for the development of all aspects of personality. Obviously, in the face of such a broadened scope of activities and aims in the educational program, our efforts are

diffuse and thinly distributed. Whatever the causes of current educational maladjustments may be, it must be recognized that there is need for deciding upon what we wish to do well.

d. Finally, at least two other conclusions may be drawn, as a result of direct or implied statements in the replies of a considerable number of teachers: (1) *the newer education is having the effect of cheapening the general quality of the learning process;* and (2) *the organization and methods of the school encourage too rapid coverage of subject matter, a condition resulting in a high degree of superficiality both in reading and learning in general.*

THE RELATIONSHIP OF SOCIO-ECONOMIC STATUS TO THE PERFORMANCE OF JUNIOR HIGH SCHOOL STUDENTS

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Purpose of the Investigation.—The purpose of this investigation was to analyze the relationships, if any, between socio-economic status and the factors of chronological age, intelligence, school achievement, and personality and interest manifestations of junior high school pupils.

Source of Data.—The data were made available by the Advisory Committee of the Coordinated Studies in Education, Incorporated. The IQ's were determined by the Kuhlmann–Anderson Tests, and the achievement scores by the Unit Scales of Attainment battery. The personality adjustment scores were obtained from the use of the B. P. C. Personal Inventory. Teachers in the various schools secured the data for extracurricular activities and hobbies.

Cases selected represented a national sampling, since they were taken from all the geographic regions and from forty-three of the states. Various types of schools and communities were represented, both large and small.

Selection of Cases.—Cases were selected on the basis of socio-economic scores derived for each pupil by the use of a rating scale which was influenced by the Sims Socio-Economic score card. The scale used ranged from zero to eighteen.

Group I, representing high socio-economic status, included scores of eleven and above. Group II, the normative group, included every third score of six for the seventh and eighth grades and of seven for the ninth grade. It was necessary to devise some method to reduce the number of cases in the normative group to the approximate number of cases in the high and the low socio-economic groups. Statistical reliabilities of central tendencies can be quite ambiguous, if population samples vary markedly in size. Group III, representing low socio-economic status, included scores of zero through two for the seventh and eighth grades and from zero through three for the ninth grade. This procedure made it possible for each of the three groups to include approximately 5 per cent of the cases available in each grade out of a total of about 18,000 cases for the three grades studied. A Relief Group was selected on the basis of whether the parents were or had been on relief, according to available data. All groups included 4,784 cases.

Statistical Treatment of Data.—The data were tabulated for each group and treated in the following statistical manner in order to show comparisons and relationships. The quartile points, namely, Q_1, the median, and Q_3, as well as the quartile deviation, or Q, were determined for all groups. The probable errors of the medians, the probable errors of the differences of the medians, and critical ratios were computed in order to determine the reliability of the differences between the scores made by each group. On the basis of the data thus obtained, both groups representing extremes in socio-economic status were compared with the normative group, and finally the extreme groups were compared with each other.

Previous Studies.—A review of earlier studies gives an inadequate and fragmentary picture of the relationship between socio-economic status and such factors as intelligence, achievement, and personality adjustment. These studies generally show limitations such as: small number of cases, lack of geographic samplings, questionable methods in the measurement of socio-economic status and intelligence, incidental treatment of the socio-economic factor, and homogeneous groups with respect to socio-economic status. The conclusions which these investigators have reached are not in accord. Hence an investigation like the present one is justified, since it seeks to overcome many of the limitations of previous studies.

Summary of Findings.—The findings are given in connection with factors considered, methods of comparison, and groups used.

1. Chronological Age.—Children from the higher socio-economic group are consistently younger, on the average, than the children from the lower socio-economic group. This difference in median age in favor of the high socio-economic group in each grade is as follows: seventh grade, 11.70 months; eighth grade, 10.08 months; ninth grade, 3.60 months. The median age of the normative group comes between the other groups, but tends to be a little closer to the high socio-economic group.

2. Intelligence.—The differences in the median IQ's, which favor the high socio-economic group, are reliable for both boys and girls in each grade and range from 14.52 for the seventh grade girls to 6.63 for the ninth grade boys. The median IQ for the normative group in every instance of comparison falls between Group I and Group III, but tends to be closer to Group III.

3. Reading.—Poor readers, as a group, come with surprising consistency from children of low socio-economic status. The differences are reliable in each grade and range from 11.13 for the eighth grade girls to 4.86 for the ninth grade boys. Again the median for the normative group falls between Group I and Group III, but tends to be closer to Group III.

4. Geography.—The children in Group I made consistently higher scores in geography than did the children of Group III. The differences are reliable in each grade, with the exception of the ninth grade girls, and here the chances that a true difference exists are about ninety-nine to one. As in the case of intelligence and reading, the normative median tends to be closer to that of Group III.

5. History.—The differences for history consistently favor Group I and are reliable in all cases except for the ninth grade boys, and in this case the chances are about ninety-nine to one that a true difference exists. In the case of the ninth grade the normative group median tends to be closer to Group I. For the other grades it follows the normal trend of tending toward Group III.

6. Problem Solving.—The children of Group I rank consistently higher in problem solving than do the pupils of Group III. However, the median of the normative group fails to follow the normal trend, since it is 2.23 points greater for the ninth grade boys than it is for Group I; also, the median for the ninth grade girls of Group III is .15 greater than for the normative group.

7. The Relief Group.—There were no reliable differences between the Relief Group and Group III. Although the actual differences between the two groups are small, in a majority of the cases they are in favor of the Relief Group; and it should be noted in this connection that the socio-economic scores for the Relief Group are higher on the average than they are for the low socio-economic group.

8. Acceleration and Retardation in Terms of Quartile Deviations from the Median of the Normative Group.—Group I for both boys and girls seems to be better in reading, next in geography, history, and problem solving in the order named. Group III, both boys and girls, seems to be better in problem solving, next in geography, reading, and history in the order named.

Group I is achieving less than is expected in the light of its tested intelligence status, and Group III is achieving more than is expected.

9. Personality Adjustment. — Maladjustment increases consistently from the high socio-economic group to the low socio-economic group, with the exception of a difference of .52 in the medians of the ninth grade boys of Group I and Group II in favor of Group II.

10. Hobbies.—Pupils from Group I have the greatest number of hobbies, and excel in activities which require more intellectual ability or are closely related to economic status. Some of these things are: reading, playing musical instruments, listening to radio or phonograph, religious activity, traveling, scouting, and collecting.

11. Extracurricular Activities.—Pupils who come from the high socio-economic group participate to a greater extent in extracurricular activities than do the children of the other groups. The tendency to take part lessens with each successive lower socio-economic group.

12. Ninth Grade Differences.—The differences between high and low socio-economic groups are less for the ninth grade in all factors considered than for the seventh and

eighth grades, a fact which may be due to a smaller range in socio-economic status between the extreme groups for this grade. There are also at least two instances of slight fluctuations in this grade from the normal trends established in the other grades.

13. The Relief Group.—The Relief Group compares very closely with Group III in personality adjustment, hobbies, and participation in extracurricular activities.

Conclusions

The major conclusions follow:

1. The problem of overageness, which is one of the very pertinent issues in the schools, definitely appears to be associated with socio-economic status.

2. Socio-economic status is not a safe clinical index from the standpoint of individual diagnosis of intelligence. However, it would appear that, if schools are called upon to deal with radically different socio-economic groups, there is a reasonable basis for anticipating that the average for one group, in matters such as those measured by the Kuhlmann–Anderson Test, is likely to be distinctly different from the average of the other group in these tested abilities. Therefore, to the extent that these tested abilities are related significantly to academic achievement, it would seem that the school might make some adaptations of its curricular offerings in the case of groups from distinctly atypical socio-economic backgrounds.

3. There seems to be a definite relationship between socio-economic status and achievement in school subjects. Hence, from groups representing extremes in socio-economic status, one seems justified in looking for differences in achievement in reading, geography, history, and problem solving. These differences should favor the high socio-economic group. Therefore, teachers may better adapt their programs to the needs of the groups with which they are working.

4. It is impossible to say whether superior achievement is a result of socio-economic status or of intelligence. One generally expects a high correlation between intelligence and achievement. It is also impossible to say whether intelligence determines socio-economic status, or that socio-economic status determines intelligence. The present investigation does not answer this question, but it does show a close relationship among the factors of socio-economic status, achievement, and intelligence.

5. The evidence points toward greater personality maladjustment in groups representing low socio-economic status than for groups representing average or high socio-economic status.

6. The number and kinds of hobbies are related to socio-economic status.

7. It appears that the extracurricular programs of schools represented in this investigation are organized to fit the upper socio-economic group, since it is this group that is participating in such activities to a much greater extent than is the low socio-economic group. Therefore, this fact is a challenge to the schools to adapt their extracurricular programs to meet the needs of more pupils.

8. The children who compose the Relief Group in each grade compare closely with the pupils from the low socio-economic group in all factors considered. In a majority of the cases the slight differences in these groups favor the Relief Group.

9. It appears that a considerable number of pupils coming from low socio-economic groups drop out of school before they reach the ninth grade, since the percentage of low socio-economic scores is less for this grade than for the seventh and eighth grades. This fact should be taken into consideration in attacking the problem of elimination from school. It also has a relationship to curricular offerings in the elementary school.

THE STABILITY OF ACHIEVEMENT DIFFERENTIALS OF THE HIGH-SCHOOL STUDENT:

A Statistical Analysis of a Five-Year Testing Program in the Plainfield High School[1]

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THE PROBLEM

Statement of the Problem

The purpose of this investigation was to determine the stability of achievement differentials as revealed by scores obtained from objective tests administered during the four years of a high-school curriculum. It was intended to investigate whether differences in achievement, as indicated by scores on these tests, exhibit such a degree of stability as to justify the use of the results of tests administered during the early terms as indications of later differences. If the differentials did not remain stable, it was proposed to examine the extent and direction of the variations. The relative stability of differentials between the various subjects and intelligence was examined as well as the trends of scores in the individual subjects and in intelligence.

Definitions of Terms

By "achievement differentials" is meant the differences in performance discovered in a pupil by comparing his scores on various standardized tests in different subject fields.

By stability of achievement differentials is meant, not a permanent, unchanging relationship between the individual's achievement in different subject fields, but a tendency for the direction of superiority in the pattern of abilities to remain fairly constant.

The term "ability" as used in this study means the actual achievement of the individual as measured by the tests used. It is to be differentiated from such concepts as "innate capacity" or "aptitude", although doubtless related to them.

By a curriculum is meant the program of studies prescribed by the laws of the state of New Jersey and as adapted for the Plainfield High School.

Delimitations

This investigation is limited to tests of achievement and intelligence. No aptitude tests or other devices have been included which are designed to differentiate original capacity from the result of its combination with such extrinsic factors as efficient or inefficient teaching, and good or bad habits of study.

Since this investigation deals with abilities that have, to a large degree, been formed in the course of eight to twelve years of schooling, conclusions drawn from the data cannot be considered as necessarily applying to traits which existed in the children before their entrance into school.

Specific Problems of the Study

This study was concerned primarily with the question of whether superiority in a certain direction tends to remain fairly constant during the high-school career. Involved in this problem were the following specific questions:

1. Do the differences, if any, between the scores in the various subject fields tend to remain constant throughout the years in which these are taken?
2. Do the differences, if any, between intelligence test scores and scores in the various subject-fields tend to remain constant throughout the years during which the latter are taken?
3. If the differences involved in questions 1 and 2 do not remain constant, what is the direction of their variation?
4. Do the scores in achievement and in intelligence fluctuate from year to year? If so, in what way?

[1] This article contains the substance of a thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the School of Education of New York University, 1940. The writer wishes to acknowledge the advice and assistance of Dr. Galen Jones and Miss Adria Galbraith of the Plainfield (New Jersey) High School, and of Professors Robert Hoppock, Paul V. West, and Ernest R. Wood of New York University.

5. Are there any observable differences in the trends of scores and differentials for better and poorer pupils?

6. What is the value, as bases of differential prognosis, of results obtained from tests administered at different grade levels?

Significance of the Problem

The problem of the stability of achievement differentials is significant for education from both a theoretical and a practical point of view. In its theoretical aspect the study is connected with the long-standing controversies over the nature of ability in general, the existence of special abilities, and the effect of formal training upon original abilities. Ever since the early work of Spearman (1) and Thorndike (2) there has been confusion in educational circles as to whether ability is generalized or specific and whether its specific factors can be classified accurately. A study of the stability of achievement differentials will cast some light on the existence and relationship of the various abilities involved in high-school subjects, at least as they are measured by standardized tests.

As to their practical aspect, achievement differentials are of importance as a basis for diagnosis, prognosis, and guidance work. Jessen (3) points out that the study of the individual pupil leads into "testing of all kinds, prognostic work, and development of records which are useful to guidance officers and teachers. Since the need for such studies is unceasing, the techniques for study are no less important than the findings themselves." One of the most important methods for the study of the individual pupil is the cumulative record card of the sort on which the data of this study are based.

In a study of first term college marks and high-school marks, Blair[2] found that correlation between scholarship in high school and college decreased as the marks of succeeding years of high school were used. If this is really the case, or even if it could be shown that marks in the early years of high school are equally as reliable as bases for prediction as those in the later years, it would indicate that guidance work relating to the selection of a college and the kind of college work to be taken could begin with profit some time before graduation from high school.

[2] J. L. Blair, *Significant Factors in the Prediction of the Success of College Freshmen*, cited in Segel (4).

It is possible that certain achievement differentials are more stable and consistent than others. If the data of this study should point to such a conclusion, we would have valuable evidence that the more stable differentials tend to represent abilities or traits that are more clearly defined and opposed. These differentials, then, would give us a basis, or at least a beginning, for an earlier and more definite classification of pupils according to types and abilities. At the same time, by using as a basis and source of its data the cumulative records of standardized objective tests given in a well-organized high school, this investigation will reveal something of the value of those cumulative scores and will give evidence for or against the expenditure of time, energy, and money involved in the giving and recording of these tests.

The Background of the Problem

Differentiable Traits

The existence of differentiable mental traits was indicated by the early studies of Spearman, Kelley, Thorndike, and Hull. Kelley (5), in 1914, presented data indicating differences in ability among elementary school children in English and arithmetic which tended to persist and appear four years later as differences of the same type in high school. Both Spearman (1) and Thorndike (2), although disagreeing as to the existence of a general factor, offered evidence indicating the existence of unit traits. Hull (6), writing in 1927, estimated trait differences within the individual to average eighty per cent as large as individual differences on any one trait.

Differential Stability

Although correlations between test scores and marks in the various high-school and college subjects, as reported by Segel (7), Eckert (8), and Wolf (9), were positive, indicating the presence of a general factor in the abilities involved, these abilities were found to be sufficiently differentiated by these three investigators, to make differential diagnosis and prediction possible. Various studies of correlation of intelligence and achievement during an extended period indicated a stability in the relationship, and Woodyard (10) found that the lapse of one year was of small importance in estimating the total variability of an individual.

In general there was a tendency for differences between abilities to decrease somewhat with the lapse of time, according to Kelley. The studies of Eckert, Kelley, Segel, and Wolf indicated that the clearest dichotomy in abilities probably existed between linguistic or verbal and mathematical or quantitative abilities. This dichotomy afforded the best opportunity for differential prediction, although Eckert and Segel found that fairly reliable differential predictions could also be made for abilities in more specific subjects.

The only two studies of differential stability to use a large number of students were those of Eckert and Wolf. They both dealt with the articulation between high-school and college scores and marks, and did not cover the performance of the pupils in the early years of high school. Wolf used only the verbal-quantitative dichotomy as a basis for differentiation, while Eckert's study was based chiefly upon Regents Examinations and teachers' marks, only two objective tests being used. The present study deals with 600 pupils, with objective test scores in eight variables, and it covers the entire four years of the high-school course.

Data and Procedure

The Data

The data for the study were compiled from tests given to 600 pupils of the 1938 and 1939 graduating classes of the Plainfield High School, Plainfield, New Jersey. This is a representative American high school with an enrollment of approximately 1800, drawing its pupils from every class in a cosmopolitan community of approximately 35,000. It was one of the seven schools cooperating with the Educational Records Bureau in a five-year testing and guidance program, utilizing cumulative records based on comparable objective tests (11). All of the pupils included in this study completed the four-year course and graduated, and in that respect may be considered a selected group. It will be noted, however, that through the elimination of all pupils who did not graduate, the group studied becomes directly comparable from year to year.

The tests used were nineteen in number, covering six subject-fields in addition to intelligence. They are listed in Table I. Their reliability coefficients (.87 to .98) indicate that they are among the most reliable objective tests available (12, 13). The number of scores in each subject-field are presented in Table II. The validity coefficients of the Cooperative Tests, as shown by correlations with school marks, range from .68 to .81.

The Procedure

Test scores were originally recorded on cumulative record cards. Raw scores were then converted into comparable scores by means of Flanagan's (14) scaled scores method, so that they might be submitted to

Table I

Standardized Achievement and Intelligence Tests, Scores on Which Form the Raw Data of This Study

Subject-Field	Reliability Coefficient	Tests Used and Their Forms
Intelligence	.92	Otis SA Advanced Forms A and B
	.89	Henmon–Nelson Mental Ability, Form A
	.95	American Council Psychological Exam. 1936, 37, 38
Science	.89	General Science-Cooperative, 1935–36
	.93	Biology-Cooperative, N('37), O('38), P('39)
	.93	Chemistry-Cooperative, O('38), P('39)
	.94	Physics-Cooperative, O('38), P('39)
Modern Foreign Language	.98	French-Cooperative, 36, N('37), O('38), P('39)
	.97	Spanish-Cooperative, 36, N('37), O('38), P('39)
	.96	German-Cooperative, 36, N('37), O('38), P('39)
Mathematics	.96	Elementary Algebra-Cooperative, '35, '36
	.94	Intermediate Algebra-Cooperative, N('37), O('38), P('39)
	.92	Plane Geometry-Cooperative, '36, N('37)
	.87	Solid Geometry-Cooperative, N('37), O('38), P('39)
	.92	Trigonometry-Cooperative, O('38), P('39)
Latin	.96	Latin Cooperative
History	.96	Ancient History-Cooperative, '35, '36
	.95	American History-Cooperative, N('37), O('38), P('39)
English	.98	English-Cooperative, '35, '36, N('37), OM, PM

TABLE II

NUMBER OF SCORES IN EACH SUBJECT-FIELD IN EACH OF THE FOUR YEARS FOR THE 1934–1938 AND 1935–1939 GROUPS

Grade	Subject-Field	Number of Scores 1934–1938	Number of Scores 1935–1939	Total Both Groups
9th	Intelligence	280	300	580
	English	0	292	292
	Science	0	179	179
	History	106	119	225
	Latin	98	85	183
	Mathematics	112	172	284
10th	Intelligence	300	289	589
	English	279	294	573
	Science	92	146	238
	Language	168	108	276
	Latin	64	87	151
	Mathematics	138	151	289
11th	Intelligence	260	289	549
	English	270	292	562
	Science	98	112	210
	History	76	155	231
	Language	123	152	275
	Latin	63	82	145
	Mathematics	84	117	201
12th	Intelligence	258	288	546
	English	246	271	517
	Science	158	98	132
	History	143	111	256
	Language	81	80	161
	Latin	17	25	42
	Mathematics	60	89	149
Total Scores		3,574	4,383	8,035

statistical analysis. These scaled scores were comparable in that they were all based upon a standard group of high-school pupils whose instruction was typical of that in several different parts of the United States, with average I.Q. of 100. The average performance of this standard group was assigned a score of 50, and units were selected so that the standard deviation of the group was 10. While scaled scores were originally devised to be applied to the tests of the Cooperative Tests Service, in this study the method was applied to all the tests.

It must be noted that the English test is based upon a norm representing achievement after four years of study, so that the average pupil should improve steadily in his scores from year to year. Similarly, a pupil's scores on the intelligence tests should show steady improvement. In mathematics, science, and history, however, each year's test is based upon achievement after a half year or year of study, so that no definite improvement is to be looked for in the scores. According to the Cooperative Test Service, however, the particular grade on which the norms of the individual tests are based is not of great significance. "Present evidence indicates . . . that if a subject such as American History had been placed in the 12th grade rather than the 11th grade, it would have made very little difference in the result" (15).

ANALYSIS OF THE DATA

Differentials

The seven variables were paired so that scores in each could be compared with scores in each of the others, for example: intelligence with English, intelligence with mathematics, English with mathematics, and so on. With history-intelligence, science-English, history-English, Latin-English, and history-mathematics, comparisons were made for different groups of pupils taking the tests over different periods. Thus for each of these five comparisons, there are two subject-pairs. In all there were twenty-three possible subject-pair combinations of the available scores. For each subject-pair correlations were calculated between scores on the two tests at each grade level for the purpose of discovering the degree of differentiation between the subjects. High correlations indicated low differentiation in the sense that

pupils high in one subject would be high in the other as well; low correlations indicated a high degree of differentiation. These correlations were compared from year to year and increases or decreases in differentiation were tested for significance by calculation of critical ratios.

In addition, the mean scores of the pupils taking the tests in each subject-pair at each grade level were calculated and the differences between the means were compared from year to year for the purpose of discovering the stability or instability of differences between the subjects. These differences were tested for significance by calculation of critical ratios. For example, one group of pupils took English and intelligence tests each year for four years. From the scores of this group, means were calculated for each test at each grade level. Differences between the intelligence and English means for these students were then compared from year to year to see whether they showed consistent superiority in either intelligence or English, and to discover also whether the differences between the means increased or decreased.

Since the minimum number of available scores for any subject pair was 50, with the numbers ranging up to 544, it was considered statistically possible to refine this analysis by studying not only the mean scores of the total group in each case, but also the mean scores of special groups within the total group. The procedure adopted for this purpose was the following: First one of the subjects in each subject-pair was selected and from the pupils taking the earliest test in this subject, those scoring among the highest and lowest twenty-five per cent were selected. Then the scores of these individuals were traced through each of the tests in both subjects throughout the years in which those tests were taken, and for each test, mean scores were calculated for both high and low groups.[3] In other words, these two groups of pupils, selected on the basis of their performance in an early test in one of the subjects of each pair, were followed through the other tests in that pair of subjects. Thus means were obtained for high and low groups at each grade level, and their trends were compared with those of the total group. This was done for each subject-pair. For example, in the comparison of intelligence and mathematics scores, the ninth-year intelligence scores were analyzed and two groups, composed of the highest and lowest twenty-five per cent, were extracted. For each of these groups, means were calculated in each of the later intelligence tests and in the mathematics tests, and were compared with those of the total group as well as with each other. In this way data were available concerning differentials and their stability, not only for comparatively unselected groups but for high and low groups in each subject as well. Conclusions based on these data, however, could not be as definite as those based on the data for the total groups, since the high and low groups were composed of smaller numbers.

[3] These means were based upon performance in one subject. When they were corrected for this selective factor, however, the corrections were found to be so slight that the original means were retained.

The Findings

In Table III are given the correlations between scores in the two variables of each subject-pair and the critical ratio, in each case, of the difference between the first and last correlation, indicating the statistical significance of the increase or decrease in correlation. In Table IV are given the differences between the means at each grade level and the critical ratios of these differences. The basic data from which those in Table IV are taken are given in Table V which includes the N of each group, the means and standard deviations, and the means of high and low groups as described above. The data of Table V are illustrated in Diagrams 1 through 20 which contain the curves for the mean scores of high, total, and low groups. Analysis of these data produced the following findings:

1. Intelligence scores became significantly less differentiated from scores in English and history, as indicated by the trend of the critical ratios of the differences between the respective means. These critical ratios decreased in order for English from 6.15 to .34; for history from 12.50 to 4.80 for one group and from 11.30 to 1.26 for the other group. There was a slight decrease in differences between intelligence and mathematics scores, the critical ratios decreasing from 6.50 to 2.74. Increases were made in the differences between intelligence and science scores and between intelligence and Latin scores, the critical ratios for the first increasing from 3.77 to 4.93, and those for the second from .37 to 9.75. For all these subject pairs there was a persistency in the direction of superiority. In

TABLE III

SUMMARY OF CORRELATION COEFFICIENTS BETWEEN PAIRED GROUPS ON DIFFERENT GRADE LEVELS

Paired Group	Grade 9		10		11		12		C. R. of Diff.
	r	σ r	r	σ r	r	σ r	r	σ r	First and Last r
English-Intelligence	.63	.035	.64	.034	.73	.025	.75	.025	3.00
Mathematics-Intelligence	.50	.062	.49	.062	.50	.062	.57	.055	.87
Science-Intelligence			.54	.071	.60	.065	.64	.051	1.43
Language-Intelligence			.36	.071	.47	.064	.63	.049	3.14
Latin-Intelligence	.44	.076	.51	.070	.53	.068			1.08
History-Intelligence	.37	.064			.46	.059			
History-Intelligence	.31	.067					.47	.059	1.25
Mathematics-English			.59	.058	.52	.060	.53	.064	.96
Language-English			.64	.049	.62	.056	.71	.041	1.32
Latin-English			.59	.057	.58	.059			
Latin-English	.38	.097	.52	.083	.42	.093			
Science-English			.51	.072	.55	.067	.55	.067	
Science-English	.42	.079	.51	.071	.53	.070			1.04
History-English	.53	.068			.56	.064			.34
History-English	.63	.063					.63	.063	
Science-Mathematics			.45	.106	.57	.098	.68	.071	2.00
Latin-Mathematics	.61	.059	.65	.054	.58	.062			.31
Language-Mathematics			.44	.079	.43	.080	.56	.086	1.02
History-Mathematics	.42	.066			.45	.064			.33
History-Mathematics	.49	.075			.45	.064			.53
Language-Latin			.60	.058	.68	.048			1.06
Science-Language			.43	.115	.34	.126	.45	.112	.16
History-Latin	.49	.069			.37	.078			1.03

TABLE IV

SUMMARY OF DIFFERENCES BETWEEN MEANS OF PAIRED GROUPS OF THE TOTAL DISTRIBUTIONS

Paired Group	Grade 9		10		11		12	
	Diff.	C. R.	Diff.	C. R.	Diff.	C. R.	Diff.	C. R.
Science-Intelligence			2.80	3.77	5.80	4.13	4.55	4.93
Language-Intelligence			—4.60	5.00	2.20	4.22	5.65	7.00
Mathematics-Intelligence	4.75	6.50	2.35	2.85	2.65	3.75	1.85	2.74
Latin-Intelligence	7.35	7.65	4.50	5.00	9.95	9.75		
History-Intelligence	9.05	12.50			3.65	4.80		
History-Intelligence	9.30	11.30					1.00	1.26
English-Intelligence	—3.20	6.15	—2.15	4.13	.60	1.20	— .17	.34
Science-English	5.80	6.17	7.10	8.25	6.15	6.55		
Science-English			6.00	7.50	6.95	7.34	5.70	6.25
History-English	13.50	16.00			4.20	4.77		
History-English	13.70	17.12					4.35	5.00
Latin-English			5.95	8.00	8.45	10.43		
Latin-English			—5.65	9.14	3.42	4.56	6.45	8.71
Mathematics-English			7.17	9.90	6.30	7.24	4.67	5.61
Science-Mathematics			.35	.03	2.00	1.76	3.40	3.90
History-Mathematics	4.80	6.57			.40	.55		
History-Mathematics	4.90	5.94					— .35	.43
Language-Mathematics			—11.30	13.25	—1.85	1.93	3.15	3.11
Latin-Mathematics	1.40	2.00	2.55	3.45	5.85	6.80		
History-Latin	6.00	8.33			—5.55	4.86		
Language-Latin			—10.30	14.51	—4.95	6.36		
Science-Language			12.60	10.60	6.00	4.05	2.60	1.57

TABLE V

BASIC STATISTICAL DATA OF MEAN SCORES FOR PAIRED VARIABLES OVER TWO, THREE, AND FOUR-YEAR PERIODS

Subject-Pair 1	Subject-Pair 2	N	Statistical Measures		9th Grade 1	9th Grade 2	10th Grade 1	10th Grade 2	11th Grade 1	11th Grade 2	12th Grade 1	12th Grade 2
Intelligence	English	241		M	46.80	43.60	47.45	45.30	48.10	48.70	57.20	52.03
				SD	10.00	8.85	10.70	8.80	11.25	10.25	10.70	11.30
		60	High	M	55.00	52.00	56.00	53.33	57.25	58.58	61.59	62.66
		60	Low	M	33.00	35.40	35.99	36.34	36.54	39.40	40.60	42.25
Intelligence	Mathematics	146		M	51.00	56.25	52.80	55.05	54.60	57.65	58.70	60.55
				SD	9.50	9.00	10.20	9.00	9.10	8.30	9.70	7.05
		36	High	M	62.00	60.93	62.97	59.64	63.25	61.59	67.80	64.09
		36	Low	M	42.50	50.06	45.35	50.33	47.55	53.94	50.75	56.17
Intelligence	Science	97		M			49.80	52.60	49.95	55.65	53.60	58.15
				SD			9.65	9.00	10.15	11.10	11.30	11.10
		24	High	M			61.00	59.79	66.03	64.19	71.34	67.31
		24	Low	M			36.69	45.13	41.37	48.65	43.86	46.87
Intelligence	Language	146		M			49.00	45.60	55.10	57.30	59.90	65.55
				SD			10.45	9.10	9.60	10.30	9.80	12.30
		36	High	M			59.00	57.50	64.64	63.67	70.20	72.70
		36	Low	M			41.86	40.37	47.00	51.69	51.17	57.25
Intelligence	Latin	110		M	50.00	50.35	52.50	57.00	54.90	64.85		
				SD	9.45	8.50	9.80	9.50	9.95	12.00		
		28	High	M	59.00	53.89	60.50	63.10	63.20	71.26		
		28	Low	M	40.50	44.35	42.41	51.27	47.15	57.00		
Intelligence	History	177		M	52.60	61.65			54.50	58.14		
				SD	9.65	7.35			9.20	9.10		
		44	High	M	59.00	63.81			62.33	63.81		
		44	Low	M	41.00	58.50			44.70	53.60		
Intelligence	History	149		M	52.55	61.85					59.70	60.70
				SD	9.70	7.65					10.35	8.40
		38	High	M	64.00	65.00					67.70	66.35
		38	Low	M	42.00	59.70					52.50	55.95
English	Mathematics	126		M			49.00	56.17	53.10	59.40	57.20	61.85
				SD			9.35	8.75	11.05	8.45	10.95	7.30
		32	High	M			56.67	66.12	61.17	67.00	66.84	67.67
		32	Low	M			46.37	45.17	46.67	50.50	51.17	53.16
English	Language	144		M			51.25	45.60	54.58	58.00	58.35	64.80
				SD			9.15	9.30	10.05	10.45	10.50	12.40
		36	High	M			57.28	57.42	63.60	67.00	66.59	73.11
		36	Low	M			42.69	35.47	46.73	48.00	49.50	54.78
English	Latin	77		M	48.80	49.00	49.25	54.85	55.00	62.45		
				SD	8.45	8.15	8.85	8.40	9.70	10.85		
		19	High	M	58.58	54.48	59.36	57.42	65.42	70.69		
		19	Low	M	37.80	43.42	40.00	49.76	46.20	57.50		
English	Latin	127		M			50.75	56.60	55.05	63.50		
				SD			9.45	9.40	10.40	11.55		
		32	High	M			62.54	69.20	67.95	72.45		
		32	Low	M			39.03	50.70	45.30	58.00		

TABLE V—Continued

BASIC STATISTICAL DATA OF MEAN SCORES FOR PAIRED VARIABLES OVER TWO, THREE, AND FOUR-YEAR PERIODS

Subject-Pair 1	2	N	Statistical Measures		9th Grade 1	9th Grade 2	10th Grade 1	10th Grade 2	11th Grade 1	11th Grade 2	12th Grade 1	12th Grade 2
English-Science		108		M	41.45	47.25	42.00	49.10	46.30	52.40		
				SD	8.40	9.80	7.90	10.10	9.25	10.45		
		27	High	M	52.55	53.90	52.74	55.15	57.75	58.46		
		27	Low	M	32.20	44.00	34.88	46.63	39.60	50.70		
English-Science		106		M			46.80	52.80	48.90	55.85	53.30	59.00
				SD			7.85	8.80	8.65	10.45	9.05	10.65
		24	High	M			51.00	62.60	54.50	67.00	58.54	69.11
		24	Low	M			43.00	42.77	44.30	45.07	48.00	47.20
English-History		113		M	47.10	60.60			54.05	58.25		
				SD	9.10	8.05			10.30	9.75		
		28	High	M	57.50	64.80			63.80	57.56		
		28	Low	M	37.00	57.50			45.70	54.65		
English-History		90		M	47.40	61.10					57.10	61.45
				SD	9.40	8.15					10.70	9.80
		22	High	M	59.25	67.00					71.80	66.55
		22	Low	M	37.00	51.35					46.55	56.35
Science-Mathematics		56		M			56.50	56.15	61.75	58.75	64.65	61.25
				SD			8.35	8.70	10.05	8.20	8.75	7.40
		14	High	M			61.64	65.90	69.14	68.42	71.64	68.80
		14	Low	M			51.56	44.15	55.21	51.29	58.43	53.80
Mathematics-Latin		112		M	56.00	50.00	54.75	57.30	58.90	64.75		
				SD	8.45	8.45	9.65	9.30	8.45	11.10		
		38	High	M	64.00	60.50	62.71	67.17	68.16	77.71		
		38	Low	M	52.90	45.75	49.00	49.32	54.59	55.40		
Language-Mathematics		106		M			44.55	55.85	57.40	59.25	66.10	61.95
				SD			9.05	8.85	10.10	8.30	12.65	7.05
		24	High	M			58.95	63.15	67.60	68.30	76.60	67.00
		24	Low	M			34.30	52.00	48.15	54.11	52.00	57.57
History-Mathematics		153		M	62.40	57.60			59.45	59.05		
				SD	7.50	8.80			9.00	8.05		
		38	High	M	66.75	67.10			64.35	66.60		
		38	Low	M	56.60	45.50			53.85	52.50		
History-Mathematics		101		M	52.35	57.45					61.55	61.90
				SD	7.25	9.00					8.00	7.25
		25	High	M	67.00	67.90					65.95	68.05
		25	Low	M	57.25	44.50					57.50	49.35
Language-Latin		121		M			46.45	56.75	58.55	63.50		
				SD			8.65	9.10	10.30	10.90		
		30	High	M			55.20	68.65	68.30	76.30		
		30	Low	M			39.50	45.85	50.35	56.00		
Science-Language		50		M			56.90	44.30	61.70	55.70	64.50	61.90
				SD			7.35	8.80	9.50	8.85	9.45	11.00
		12	High	M			61.17	52.83	66.55	59.11	70.00	70.00
		12	Low	M			51.17	35.33	55.50	47.33	55.91	56.00
History-Latin		121		M	63.25	57.25			58.50	64.05		
				SD	7.15	8.45			8.55	12.60		
		30	High	M	68.65	68.30			64.15	78.15		
		30	Low	M	59.30	45.50			56.80	64.50		

the language intelligence differences, however, there was a change in the direction of superiority, there being an original critical ratio of 5.00 in favor of intelligence and a later one of 7.00 in favor of language.

Differentiation between the subjects in terms of the tendency for pupils to maintain the same relative standings in both subjects, and as indicated by the correlation coefficients, decreased for intelligence as compared with all the other variables. In all cases there were net increases in correlation coefficients, indicated by critical ratios between the first and last correlations of 3.00 for English, .87 for mathematics, 3.14 for language, 1.08 for Latin, 1.43 for science, and 1.25 for history.

When curves for high and low groups are compared with those for total groups in Diagrams 1 through 6, it is noted that all three groups show the same trends in comparison of intelligence scores with history and language scores. High groups show somewhat

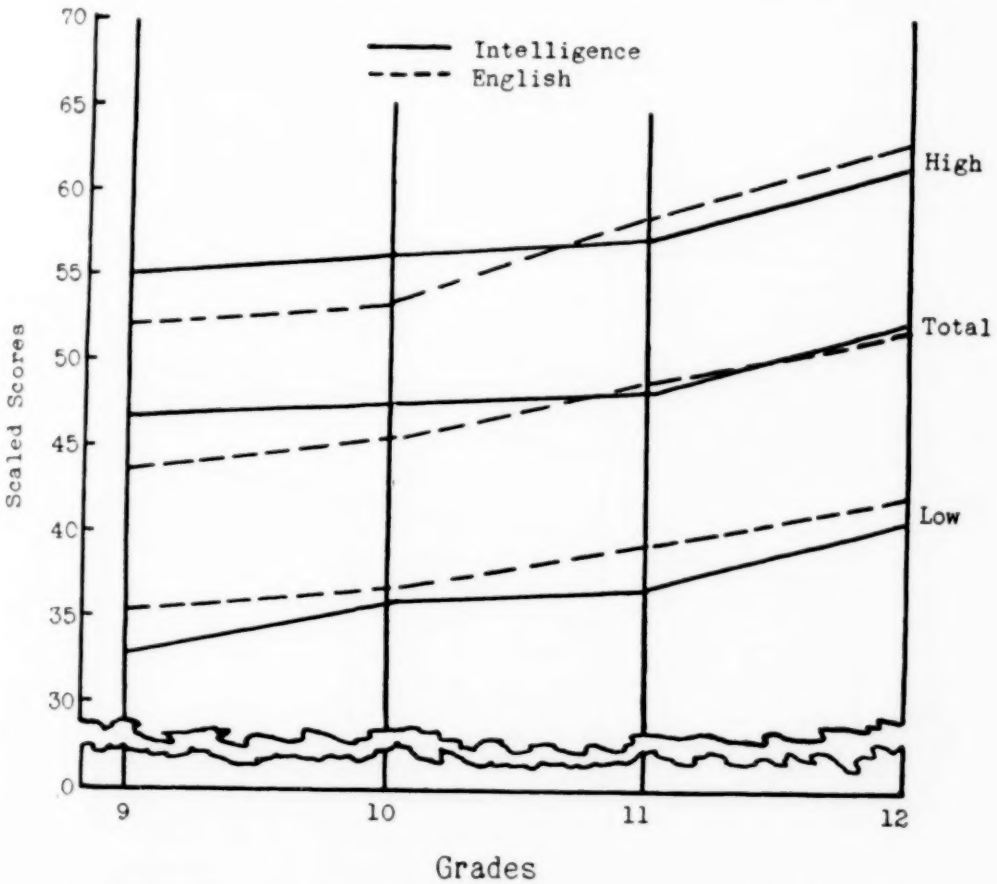

Diagram 1.—Comparative Mean Scores in Intelligence and English Achievement for Successive Grades of High, Low and Total Groups.

(High and Low Scores Were Grouped According to Results in Ninth-Grade Intelligence.)

different trends in English-intelligence comparisons where their English scores were constantly higher than their intelligence scores, and in mathematics and science comparisons where their intelligence scores were constantly higher than their subject-matter scores, while low and total groups show opposite tendencies.

While the low and total groups in Latin-intelligence show constant superiority in Latin, the high group has an original superiority in intelligence, changing later to superiority in Latin.

2. English scores became significantly less differentiated from scores in intelligence, mathematics, and history, as indicated by the trend of the critical ratios of the differences between the respective means. These critical ratios decreased for intelligence from 6.15 to .34; for mathematics from 9.90 to 5.61; for history from 16.00 to 4.77 for one group and from 17.12 to 5.00 for the other group. No definite trends were observable for science-English differences, the critical ratios for one of the science-English groups increasing from 6.17 to 6.55, and those for the other group

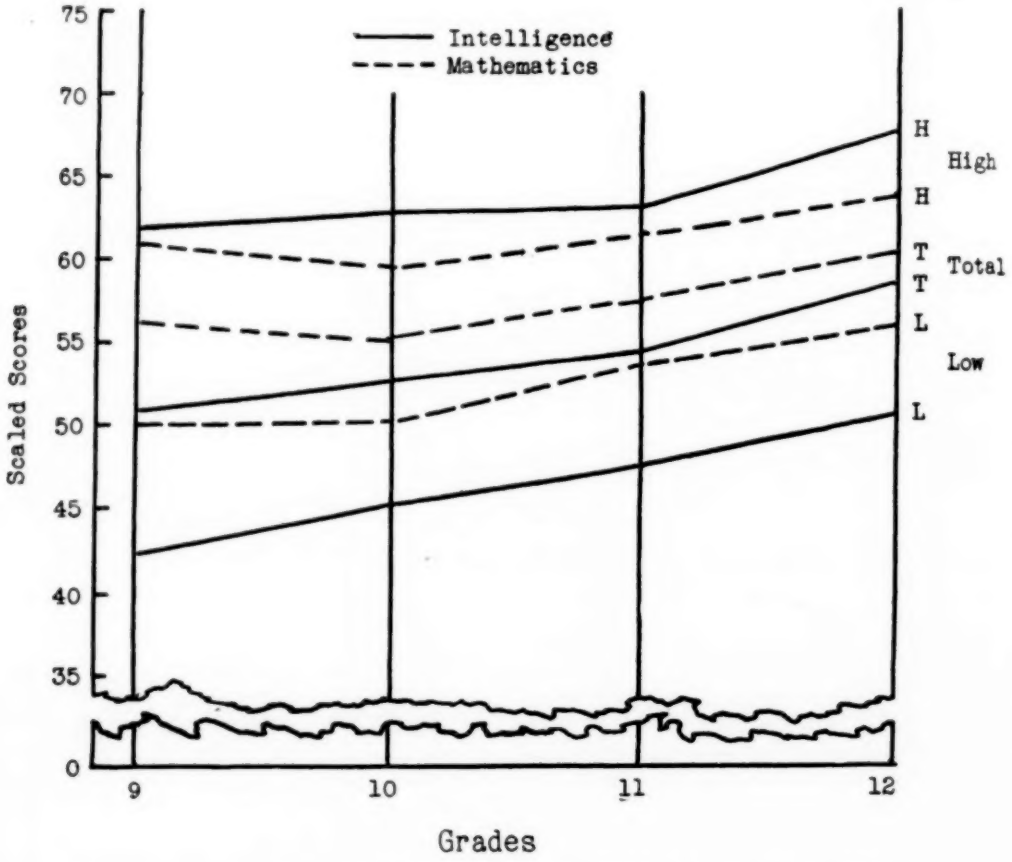

Diagram 2.—Comparative Mean Scores in Intelligence and Mathematics Achievement for Successive Grades of High, Low and Total Groups.

(High and Low Scores Were Grouped According to Results in Ninth-Grade Intelligence.)

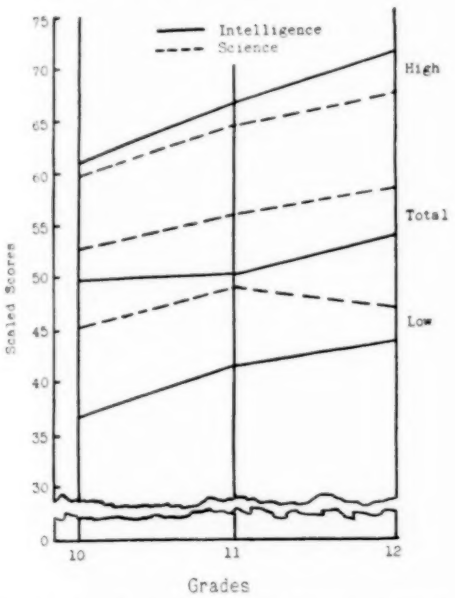

Diagram 3.—Comparative Mean Scores in Intelligence and Science Achievement for Successive Grades of High, Low and Total Groups

(High and Low Scores Were Grouped According to Results in Tenth-Grade Intelligence.)

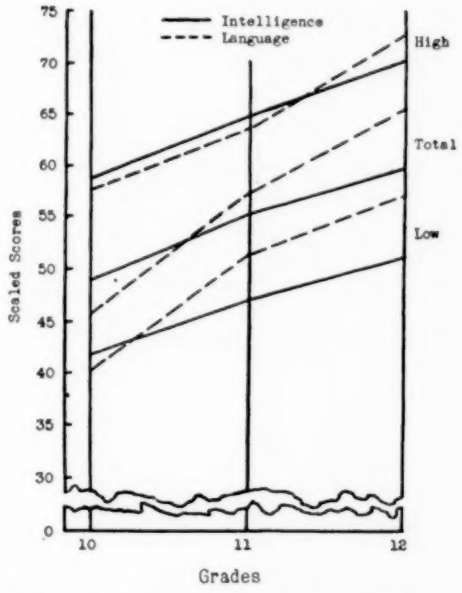

Diagram 4.—Comparative Mean Scores in Intelligence and Language Achievement for Successive Grades of High, Low and Total Groups.

(High and Low Scores Were Grouped According to Results in Tenth-Grade Intelligence.)

decreasing from 7.00 to 5.00. English became more differentiated from Latin, the critical ratios of the differences increasing for both groups—for one from 8.00 to 10.43, and for the other from .20 to 5.00. For all these subject-pairs there was a persistency in the direction of superiority. Language-English differences showed a change in the direction of superiority, there being an original critical ratio of 9.14 in favor of English and a later one of 8.71 in favor of language.

Differentiation between subjects as indicated by the correlation coefficients increased slightly for English and mathematics where there was a critical ratio for the decrease in correlation coefficients of .96. Other subjects showed a slight increase in correlation and a slight decrease in differentiation as indicated by critical ratios for language of 1.32, Latin of .03, science of 1.04, and history of .34.

High and low groups for subject pairs involving English, as illustrated in Diagrams 7 through 13, show tends similar to those shown by the total groups in all cases but English-history, where the high group was

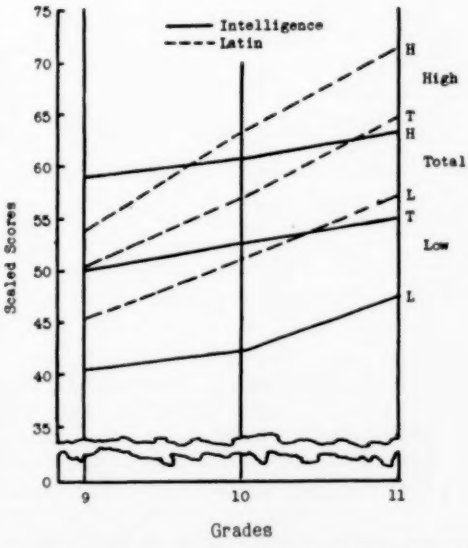

Diagram 5.—Comparative Mean Scores in Intelligence and Latin Achievement for Successive Grades of High, Low and Total Groups.

(High and Low Scores Were Grouped According to Results in Ninth-Grade Intelligence.)

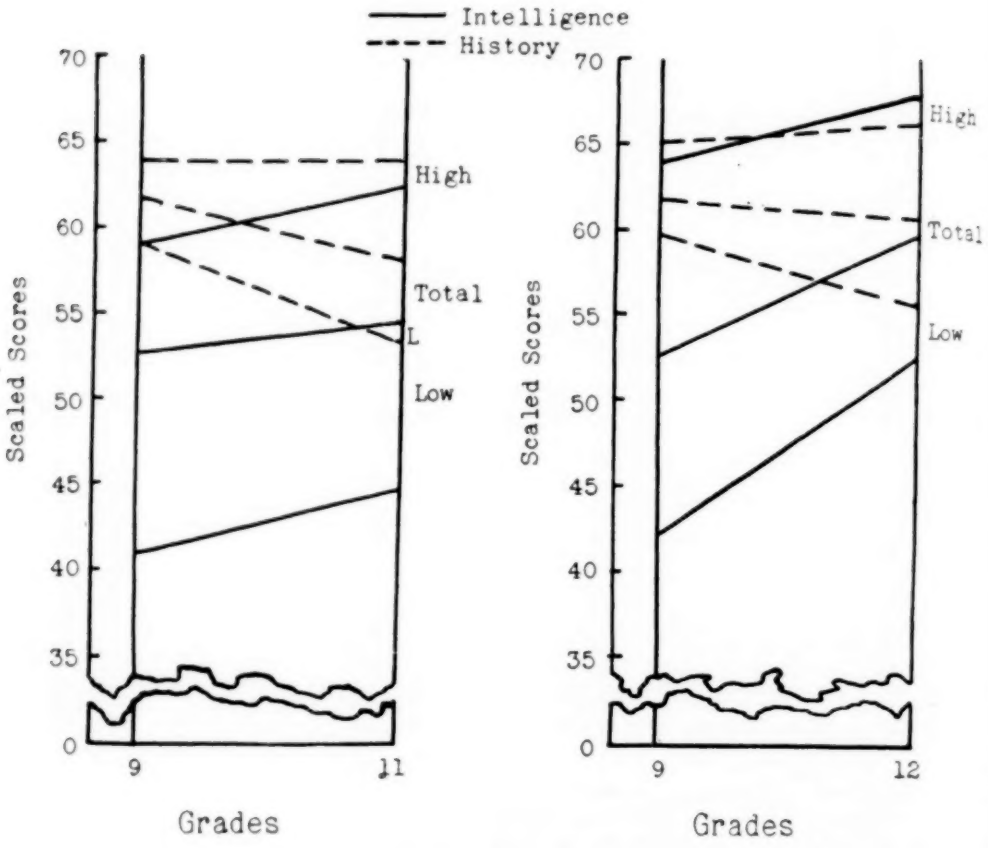

Diagram 6.—Comparative Mean Scores in Intelligence and History Achievement for Grades of High, Total and Low Groups.

(High and Low Scores were Grouped According to Results in Ninth-Grade Intelligence.)

better in English than in history in the later terms, whereas both low and total groups were constantly better in history. The English-intelligence trends have been described above.

3. Mathematics scores became more differentiated from scores in science, as indicated by the trend of the critical ratios of differences between means which increased from .03 to 3.90. Differences decreased significantly for both groups of pupils in the mathematics-history comparisons, from 6.57 to .55 for one group and from 5.94 to .43 for the other group. For these subject-pairs there was a persistency in the direction of superiority. Language and Latin, however, did not show such stability, there being, in the first case, an original difference in favor of mathematics with a critical ratio of 13.25 and a later difference in favor of language with a critical ratio of 3.11; in the second case, an original difference in favor of mathematics with a critical ratio of 2.57 and a later difference in favor of Latin with a critical ratio of 6.80.

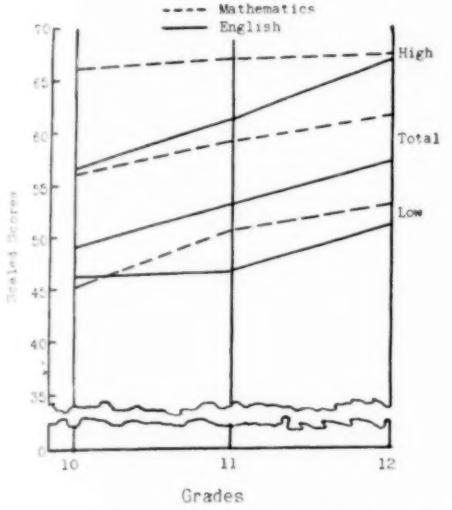

Diagram 7.—Comparative Mean Scores in Mathematics and English Achievement for Successive Grades of High, Total and Low Groups

(High and Low Scores Were Grouped According to Results in Tenth-Grade Intelligence.)

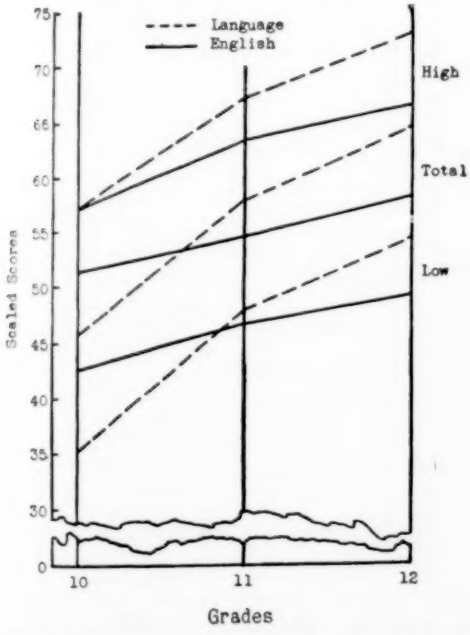

Diagram 8.—Comparative Mean Scores in Language and English Achievement for Successive Grades of High, Low and Total Groups.

(High and Low Scores Were Grouped According to Results in Tenth-Grade Intelligence.)

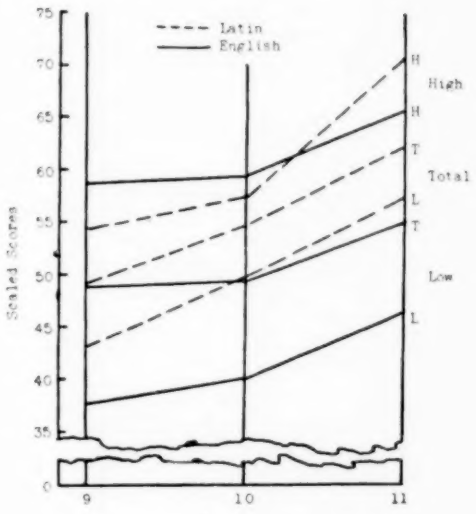

Diagram 9.—Comparative Mean Scores in Latin and English for Successive Grades of High, Low and Total Groups

(High and Low Scores Were Grouped According to Results in Ninth-Grade Intelligence.)

Decreases in differentiation, as indicated by increases in correlations, were evident for mathematics as compared with science where there was a critical ratio for the difference in correlations of 2.00, and for mathematics as compared with language where the critical ratio was 1.02. Slight net increases in differentiation were indicated with Latin, where there was a critical ratio of .31. The two history groups showed opposite tendencies as compared with mathematics, there being an increase in correlation with a critical ratio of .33 for one group, and a decrease with a critical ratio of .53 for the other group.

The following differences were indicated for the trends of high and low groups as compared with total groups for mathematics comparisons, as illustrated in Diagrams 14 through 17: The high group in science-mathematics was originally superior in mathematics, and later in science, while low and total groups were both constantly superior in science; the low group in mathematics-language showed a constant superiority in mathematics, whereas for high and total groups there was a change in the direction of superiority; the high group in mathematics-history was superior in mathematics,

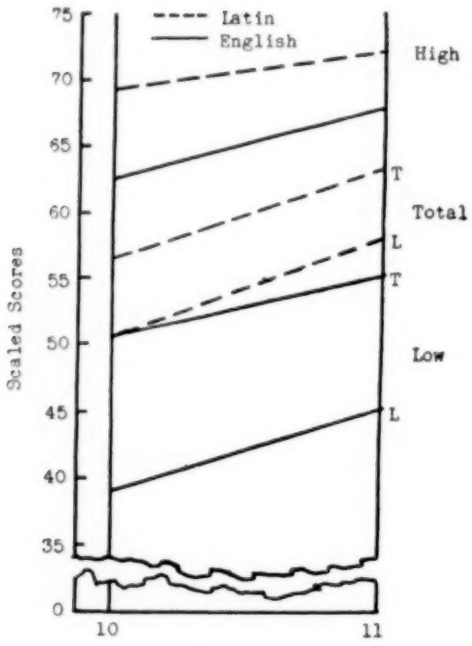

Diagram 10.—Comparative Mean Scores in Latin and English Achievement for Successive Grades of High, Low and Total Groups.

(High and Low Scores Were Grouped According to Results in Tenth-Grade Intelligence.)

whereas both other groups were superior in history.

Mathematics-English and mathematics-intelligence differentials have already been described.

4. Latin scores became less differentiated from language scores, the critical ratios for the differences between means decreasing from 14.51 to 6.36. The direction of superiority was maintained. In the case of Latin-history, however, there was a change in the direction of superiority, there being an original difference with a critical ratio of 8.33 in favor of history, and a later difference with a critical ratio of 4.86 in favor of Latin.

Differentiation in terms of the tendency to maintain similar relative standings in the two subjects decreased for language-Latin where

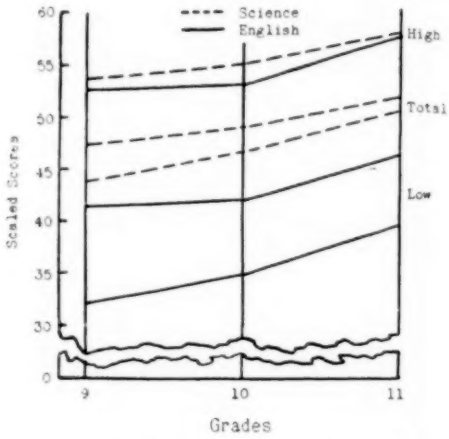

Diagram 11.—Comparative Mean Scores in Science and English Achievement for Successive Grades of High, Low and Total Groups

(High and Low Scores were Grouped According to Results in Ninth-Grade Intelligence.)

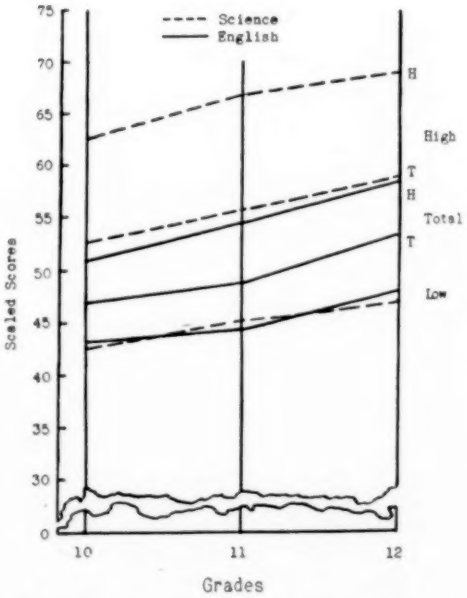

Diagram 12.—Comparative Mean Scores in Science and English Achievement for Successive Grades of High, Low and Total Groups

(High and Low Scores Were Grouped According to Results in Tenth-Grade Intelligence.)

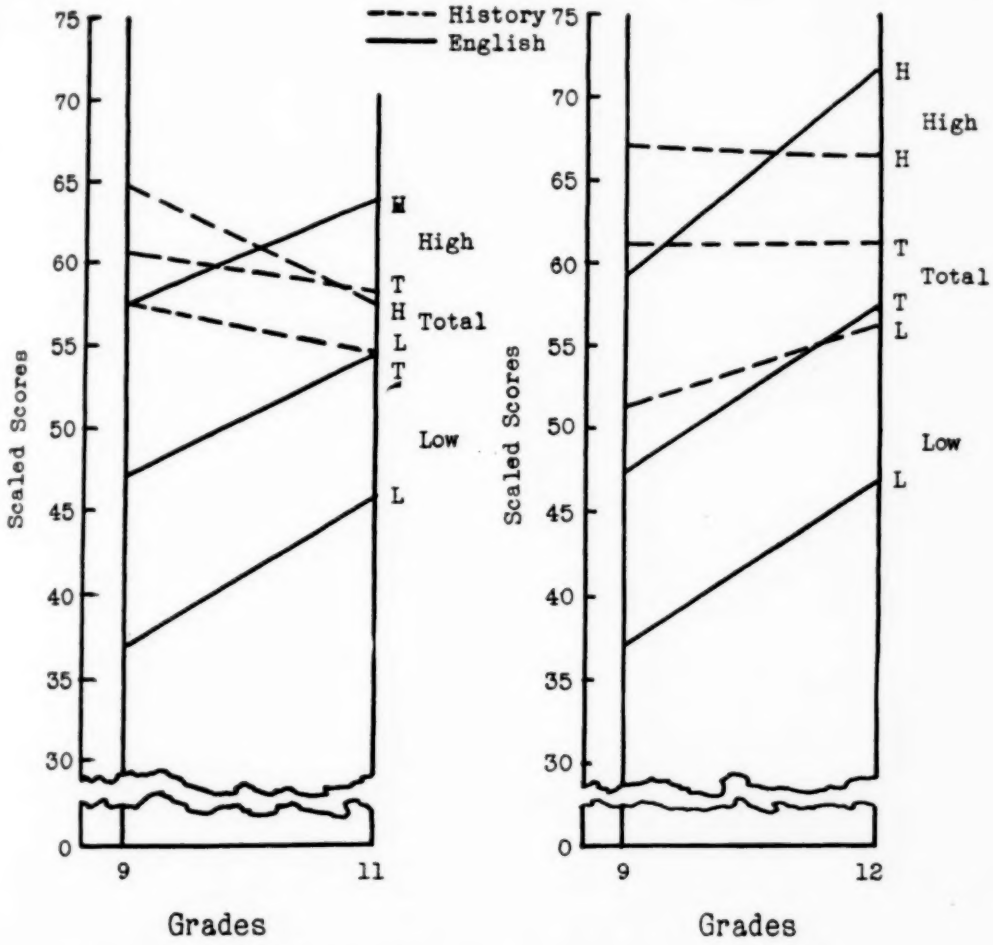

Diagram 13.—Comparative Mean Scores in History and English Achievement for Ninth and Eleventh and Ninth and Twelfth Grades of High, Low and Total Groups.

(High and Low Scores Were Grouped According to Results in Ninth-Grade Intelligence.)

there was an increase in correlations with a critical ratio of 1.06, and increased for history-Latin where there was a decrease in correlations with a critical ratio of 1.03.

High, low and total groups showed similar trends in Latin-language differentials, as illustrated in Diagram 18. Both high and low groups differed from the total group in the Latin-history comparisons as illustrated in Diagram 20. The high group was constantly superior in Latin, and low group constantly superior in history, while the total group showed a change in the direction of superiority.

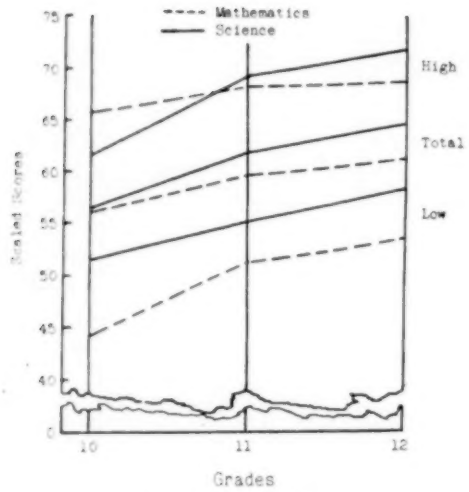

Diagram 14.—Comparative Mean Scores in Mathematics and Science Achievement for Successive Grades of High, Low and Total Groups.

(High and Low Scores Were Grouped According to Results in Tenth-Grade Intelligence.)

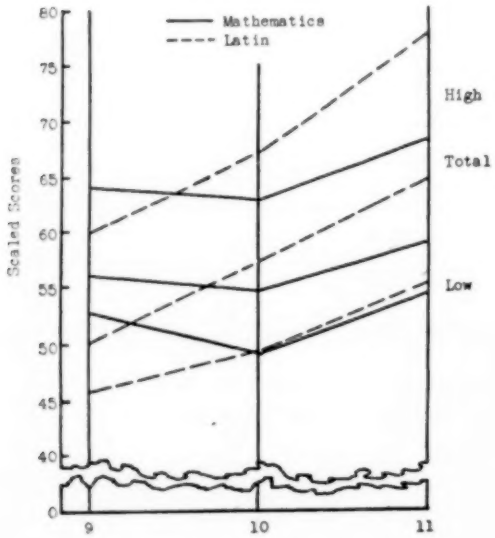

Diagram 15.—Comparative Mean Scores in Mathematics and Latin Achievement for Successive Grades of High, Low and Total Groups.

(High and Low Scores Were Grouped According to Results in Ninth-Grade Intelligence.)

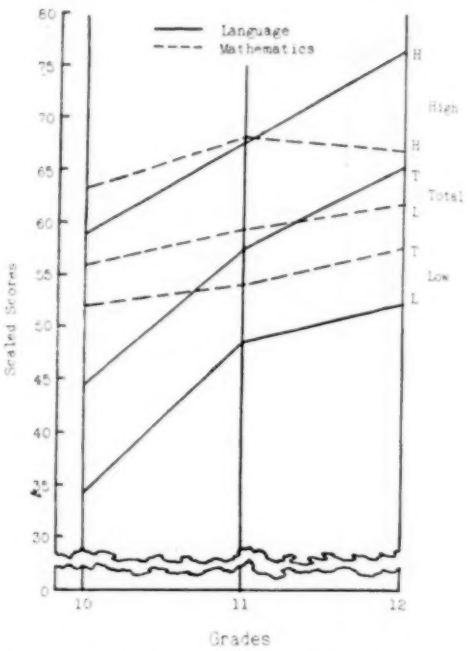

Diagram 16.—Comparative Mean Scores in Language and Mathematics Achievement for Successive Grades of High, Low and Total Groups

(High and Low Scores Were Grouped According to Results in Tenth-Grade Intelligence.)

The findings for other subject-pairs involving Latin have already been described.

5. Science scores became less differentiated from language scores as indicated by the differences between the means, the critical ratios decreasing from 10.60 to 1.57.

There was very little change in the degree of differentiation as indicated by correlation coefficients between science and language, correlations showing a net increase indicated by a critical ratio of .16.

High and low groups showed similar tendencies to the total group in the language-science differentials, as illustrated in Diagram 19.

Findings for all other subject-pairs involving science, and for all subject-pairs involving language and history have been described in the above paragraphs.

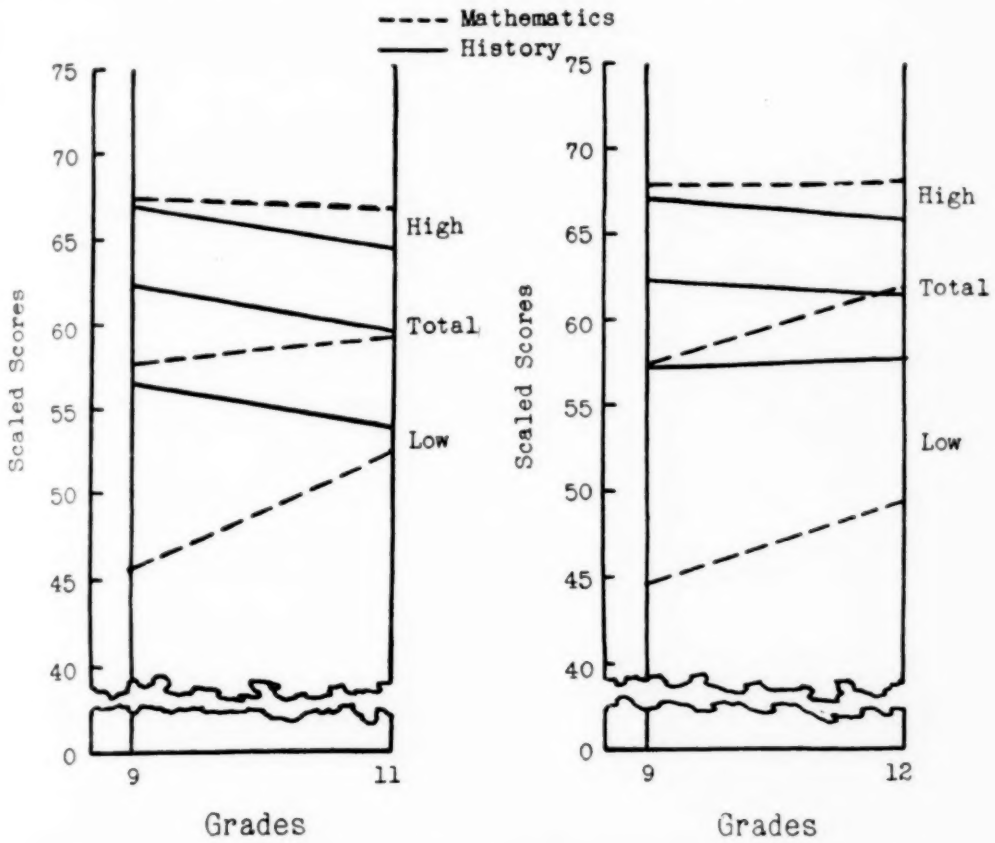

Diagram 17.—Comparative Mean Scores in Mathematics and History Achievement for Ninth and Eleventh and Ninth and Twelfth Grades of High, Low and Total Groups

(High and Low Scores Were Grouped According to Results in Ninth-Grade Intelligence.)

Relative Prognostic Value of Tests in Different Years

The stability of differentials depends upon the stability of performance of pupils in individual subjects or groups of subjects, and any prognosis of differential achievement is based, ultimately, upon the assumption that performance in the individual subjects can be predicted with sufficient accuracy. It is obvious, however, that the accuracy of prediction both of individual performance and of group differentials depends to some extent upon the time of the school career at which prediction is made and also upon the lapse of time covered by the prediction. The present study was concerned exclusively with the four years of high school and in its prognostic aspects it was concerned with the possible prediction of twelfth-year achievement on the basis of earlier achievement.

Three problems with which the study was concerned, then, were: (1) The type and

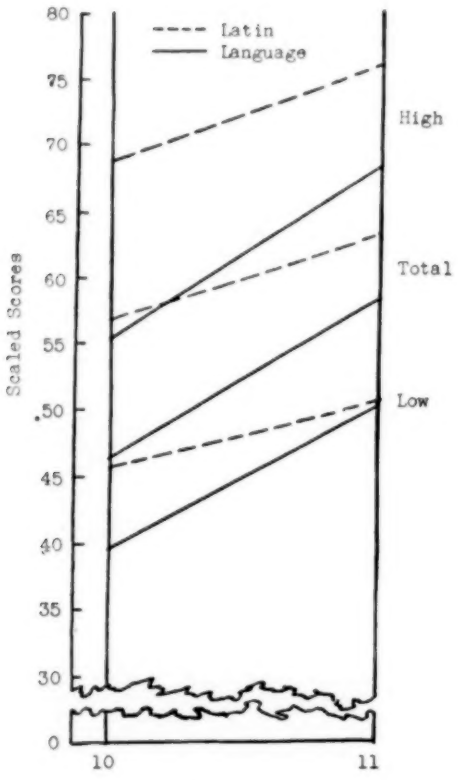

Diagram 18.—Comparative Mean Scores in Latin and Language Achievement for Successive Grades of High, Low and Total Groups.

(High and Low Scores Were Grouped According to Results in Tenth-Grade Intelligence.)

amount of relationship between achievement in the later years of the course and performance in the earlier years, as measured by scores on standardized tests. (2) The optimum stage in the high-school course at which performance in a later year can be best predicted. For example, ninth-year scores may be compared with tenth-year scores to see which is the more accurate indicator of twelfth-year scores. A general tendency pointing to a period of optimum prediction may be discovered or the best time for prediction may vary from subject to subject.

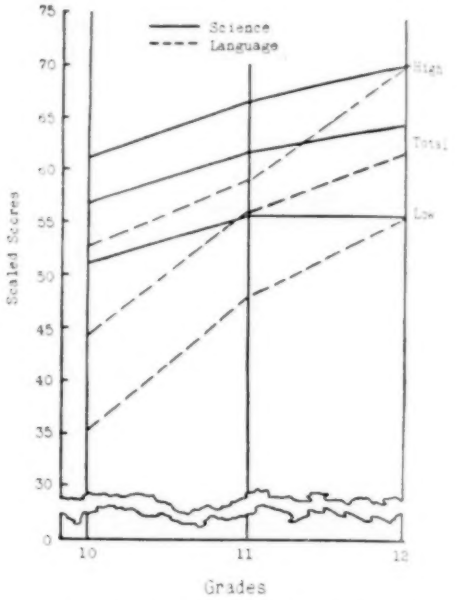

Diagram 19.—Comparative Mean Scores in Science and Language Achievement for Successive Grades of High, Low and Total Groups

(High and Low Scores Were Grouped According to Results in Tenth-Grade Intelligence.)

(3) The earliest year at which correlations between tests in the same subject indicate that differentials involving that variable are likely to be stable. When the correlations between tests in the same variable given in different years are high, the differentials involving that variable are likely to be stable from year to year to the extent that differential stability is affected by stability of performance in the individual variable.

The statistical methods employed in this analysis are similar to those used for the comparison of scores on tests in different subject-fields, except that they are applied to such successive annual tests in the same variable as were available. Correlation coefficients of scores of first-year achievement tests in each subject-field and in intelligence with scores in the same type of tests in succeeding years were calculated. The same procedure was used with respect to second-year tests compared with those for the third and fourth years, and with respect to the third year compared with the fourth. In other words, all available tests within the same

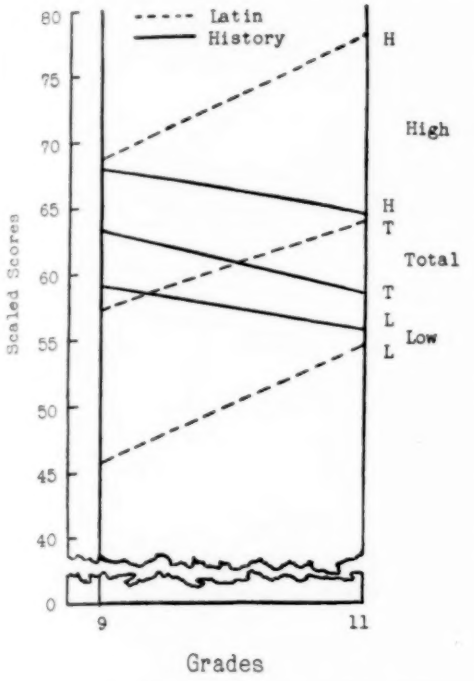

Diagram 20.—Comparative Mean Scores in Latin and History Achievement for Ninth and Eleventh Grades of High, Low and Total Groups.

(High and Low Scores Were Grouped According to Results in Ninth-Grade Intelligence.)

subject-field were correlated and compared. In addition, the differences between the means and the significance of these differences in succeeding years were calculated in the same manner as for the paired scores in different subject-fields.

The Findings

In Table VI are given the means and standard deviations on each of the tests in all the variables. In Table VII are given the correlations between annual tests in the same subjects, and in Table VIII the critical ratios of the differences between the various correlations of early tests with the final test in each variable. Table IX contains the critical ratios of the differences between the means of the various tests in the same subjects. These findings may be summarized as follows:

1. Correlations with twelfth-year intelligence scores were significantly higher from the tenth year on than in the ninth as indicated by critical ratios of 2.91 for the difference between ninth-twelfth and tenth-twelfth correlations, and 3.40 for the difference between ninth-twelfth and eleventh-twelfth correlations. The mean scores in intelligence improved from year to year, the most significant improvement with a critical ratio of 9.80 coming between the eleventh and twelfth years.

2. Correlations with twelfth-year English scores were significantly higher after the tenth year as indicated by the critical ratios of the differences between the various correlations. These were 2.50 between ninth-twelfth and tenth-twelfth and 3.21 between ninth-twelfth and eleventh-twelfth. Mean scores in English decreased slightly from the ninth to the tenth years, the critical ratio of the difference being .94, but increased significantly afterwards, the later critical ratios being 11.00 and 10.00.

3. Correlations with twelfth-year mathematics scores were significantly higher in the eleventh year than in either of the preceding years, the critical ratio of the difference between ninth-twelfth and eleventh-twelfth correlations being 6.00 and that between tenth-twelfth and eleventh-twelfth being 5.00. Mean scores increased significantly from the tenth year onward after a slight decrease with a critical ratio of 1.85 from the ninth to the tenth years.

4. Twelfth-year language scores were correlated significantly higher with eleventh-year scores than with tenth-year scores, the critical ratio of the differences between the correlations being 2.50. There was a significant improvement in language scores from year to year as indicated by critical ratios of 17.20 and 22.40.

5. Eleventh-year Latin scores were correlated nearly as well with ninth-year scores as with tenth-year scores, the critical ratio of the difference between the correlations being only .96. Latin scores improved significantly from year to year as shown by critical ratios of 13.16 from the ninth to the tenth year and 12.01 from the tenth to the eleventh.

6. The correlation between eleventh and twelfth-year science scores was significantly higher than that between tenth and twelfth-year scores, the critical ratio of the difference

TABLE VI

STATISTICAL DATA OF SCORES ON SUCCESSIVE TESTS IN THE SAME VARIABLES OVER TWO, THREE, AND FOUR-YEAR PERIODS

Subject	N	Statistical Measures	9th Grade	10th Grade	11th Grade	12th Grade
Intelligence	241	M	46.80	47.45	48.10	52.20
		SD	10.00	10.70	11.25	10.70
English	241	M	43.60	43.30	48.70	52.40
		SD	8.85	8.80	10.25	11.30
Mathematics	146	M	56.25	55.05	57.65	60.55
		SD	9.00	9.00	8.30	7.05
Language	144	M		45.60	58.00	64.80
		SD		9.30	10.45	12.40
Latin	112	M	50.00	57.30	64.75	
		SD	8.45	9.30	11.10	
Science	106	M		52.80	55.85	59.00
		SD		8.80	10.45	10.65
History	177	M	61.65		58.15	
		SD	7.35		9.10	
History	149	M	61.85			60.70
		SD	7.65			8.40

TABLE VII

CORRELATIONS BETWEEN SCORES ON SUCCESSIVE ANNUAL TESTS IN THE SAME SUBJECT

	Number of Years Separation					
		1		2		3
	9–10	10–11	11–12	9–11	10–12	9–12
Intelligence	.75	.80	.83	.75	.80	.70
English	.86	.80	.86	.76	.84	.77
Mathematics	.66	.80	.93	.76	.72	.63
Language		.61	.77		.62	
Latin	.74	.80		.75		
Science		.68	.81		.65	
History				.68		.63

TABLE VIII

CRITICAL RATIOS OF DIFFERENCES BETWEEN CORRELATION COEFFICIENTS OF GRADE COMBINATIONS

	Grade Combinations					
	(9–12) (10–12)	(9–12) (11–12)	(10–12) (11–12)	(9–11) (10–11)		
Intelligence	2.91	3.40	1.00			
English	2.50	3.21	.80			
Mathematics	1.40	6.00	5.00			
Language			2.50			
Latin				.96		
Science			2.18			

TABLE IX

CRITICAL RATIOS OF THE DIFFERENCES BETWEEN THE MEANS OF SUCCESSIVE ANNUAL TESTS IN THE SAME SUBJECT

	Number of Years Separation					
		1		2		3
	9–10	10–11	11–12	9–11	10–12	9–12
Intelligence	1.40	1.50	9.80	3.10	11.00	10.00
English	— .94	11.00	10.00	12.00	19.75	19.13
Mathematics	—1.85	5.77	7.00	2.75	10.80	7.16
Language		17.20	22.40		26.23	
Latin	13.16	12.01		10.80		
Science		3.90	5.00		7.60	
History				—7.00		—1.35

between correlations being 2.18. There was significant improvement in science scores from year to year with critical ratios of 3.90 and 5.00.

7. American history scores were correlated about equally with ancient history scores whether the former subject was taken in the eleventh or the twelfth years, the correlations being respectively (for different groups) .68 and .63. There was, however, a much smaller decline in scores for the group taking American history in the twelfth year, the critical ratios of the decreases in means being 7.00 for the eleventh-year group and 1.35 for the twelfth-year group.

Conclusions

Within the limitations of this study, the following conclusions are indicated:

1. A general stability of differentials among the various subjects themselves and between the various subjects and intelligence is indicated, to the extent that superiority tends to continue in the same direction, although the actual size of the differentials may vary. An exception to this tendency exists for those differentials involving language: in the beginning, scores tend to be higher in the other subjects than in language, but toward the end of the course the language scores tend to be higher than the others. This is due to a very rapid improvement in language scores.

2. In general there is a tendency for the size of the achievement differentials to decrease during the high-school course. The statistical findings for the individual subjects are not significant enough to justify separate conclusions, but an apparent exception to this general tendency may be noted for differences between science and mathematics, and Latin and mathematics, where the differences show tendencies to increase.

3. All the variables studied in this investigation are correlated positively with each other, the correlations ranging from .31 to .75. These correlations are somewhat lower than those between different tests in the same subject, indicating that some degree of differentiation is clearly possible. The subjects with the closest relationship and least differentiation are English and intelligence, science and intelligence, language and English, science and mathematics, Latin and mathematics, and language and Latin. Those with the lowest correlations and greatest differentiation are history and intelligence, Latin and English, history and mathematics, science and language. In general these indicate the existence of some difference between linguistic and mathematical abilities, with English and language on one side, and mathematics and science on the other. Intelligence and Latin are about equally correlated with both sets of subjects, while ability in history is apparently independent.

4. Differentiation between subjects tends to remain fairly constant, but there is a general slight tendency for correlations to increase and for differentiation to decrease. This is especially true of those subjects that are least differentiated from each other.

5. Scores in most subjects tend to improve significantly from year to year. An apparent exception to this is history, American history scores being lower than ancient history scores. It must be noted, however, that the American history test was given after only one-half year of work. American history scores were higher for those pupils who took American history in their twelfth year than for those taking it in the eleventh, indicating that the mature pupils do better in this subject.

6. In general, high and low groups of pupils show the same tendencies in their differentials as the total groups tested. An exception to this tendency general enough to warrant mention is that for the high pupils to be consistently better in the subject in which they form the superior group, although pupils of the low and total groups may exhibit superiority in the other subject of the subject-pair. Moreover, the results of this study show a tendency for the high groups to do less well in proportion to their intelligence than the low groups.

7. In general, relative performance in the same subjects appears to be fairly stable after the tenth year, so that tenth-year scores are approximately as good a basis of prediction of twelfth-year scores as are eleventh-year scores. In the case of mathematics, language, and science scores, however, a significantly better prediction can be made in the eleventh year than in the tenth. Ninth-year scores appear to be untrustworthy for prediction of twelfth-year performance.

Implications of the Findings

Certain implications of the findings of this study may be pointed out:

The evidence of stability of differentials suggests the possibility of guidance as early as the beginning of the high-school course. Moreover, the conclusion that there exists a rather clear-cut dichotomy between verbal and mathematical abilities and that optimum prediction is attained by the tenth year suggests the value of specialization along the lines of this dichotomy as early as the tenth year of the high school.

The evidence of a tendency for differentials to decrease indicates that the school is levelling differences in the abilities of the individual by insisting upon good or at least passing work in a wide variety of subjects. While a certain minimum of knowledge and skill must be required from every pupil in certain subjects, it might be advisable for the school to concentrate more upon developing special abilities, and less upon making up deficiencies.

As to the relationship existing between the various subjects, this study has tended to support earlier findings in all cases except in the evidence here provided that Latin is less correlated with English than with mathematics, indicating that the long-assumed relationship between Latin and English may not be based upon fact.

Further, the findings of the present study emphasize the value of cumulative records and large-scale testing programs in the analysis of relationships between abilities.

Suggestions for Further Research

The chief suggestions for further study arising from this investigation are:

1. That patterns of abilities covering more than two subjects be studied for stability. In the present study the analysis was confined to differences in performance in subject pairs.
2. That in future studies efforts be made to take into consideration such effective factors in stability of differentials as quality of teaching and the interest of the pupil.
3. That stability of differentials be studied for the subjects of the commercial and technical curriculums, as well as for the general academic courses.

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CHANGING IDEOLOGIES OF PEACE ORGANIZATIONS IN THE UNITED STATES FROM 1919 TO 1939[1]

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Statement of Problem

The purpose of this study is to examine the ideologies of peace organizations in the United States from 1919 to 1939 in the light of changing and important world events, to trace the degree to which the purposes and programs of these organizations have remained static or have been changed to meet shifting needs arising out of world crises, and to study, in the light of these world events, the techniques used by peace organizations in their appeal either to the masses or to the intellectuals.

Sources of Data

Primary sources of data have been private and public documents, personal interviews, and correspondence. These data have varied widely, from confidential records and minutes of meetings to a host of printed material. Secondary sources have been consulted in the form of numerous studies covering the history of peace, and of many topics dealing with related aspects of the pacifist movement. Because the number of organizations in the United States engaged in activities opposed to war is so large, exceeding four hundred, the major portion of this study deals with the thirty-nine members of the National Peace Conference, which is accepted as the most outstanding coordinating agency and clearing-house in the field of the peace movement.

Methods of Procedure

Requests for material were sent to National Peace Conference members. The material received was read and filed, and from a study of the items dealt with, together with conferences and criticisms, particularly from Arthur Reeve, Jr., Executive Secretary of the National Peace Conference, a data sheet, or type of questionnaire, was developed. Before each interview, material which had been received was studied and information was recorded on the data sheet for verification and amplification.

An appointment was requested with the chief administrator or other representative most familiar with the policies of the organization over the greatest number of years. After the interview a request was made for access to documentary material which would reveal the changes and variations of program and policies. Following the accumulation of data, second interviews were frequently held for corrections and for inquiries relative to records that were not clear.

The data gathered for each organization were compiled into a case-study and numerical data were recorded on charts for later comparison. A chronology was developed, to be used in attempting to understand why changes had or had not been made in ideologies. Graphs, tables, and charts were made for comparison of data and conclusions were drawn.

FINDINGS

Many of the organizations which were members of the National Peace Conference were in existence before 1919, the beginning of the period of this study, and hence are much older than the National Peace Conference, organized in 1933. Sixteen of the groups were established exclusively for peace, and twenty-three were organized with peace as but one aim. The members fall into three categories of organizational types: direct membership organizations, federations, and centralized bodies.

The aggregate affiliated membership of the members of the National Peace Conference exceeds sixty-six millions of people, yet the only number which represents actual and direct membership in groups organized exclusively for peace is 67,500. What the actual number of individuals who are working for peace is, would be pure hazard even to estimate. Probably 67,500 is an underestimate, and certainly 66,000,000 includes many thousands who have never had a part in any kind of peace program.

[1] Abstract of a dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the School of Education of New York University, 1940.

The National Peace Conference is not a cross-section of the national population. Central offices of members are predominantly along the Eastern Seaboard, which has a greater proximity to the storm centers of Europe. Some further argue that the National Peace Conference is not a representative body in that it fails to include the more influential labor and racial groups. The majority of the supporters of the peace movement are from the middle and upper economic levels of society.

According to the most recently available figures, the annual expenditures of member institutions of the National Peace Conference, organized solely for peace, approximate $1,250,000. Much of this amount is represented by subsidies from the Carnegie and other endowments and foundations. If the aggregate of the subsidies were deducted from the above mentioned sum, it would be found that a comparatively small amount is contributed by lay members in the form of annual fees or dues, indicating that the peace movement is largely supported and carried on by a comparatively few individuals. It is probably conservative to estimate the annual expenditure for the cause of peace at $1,500,000.

The present study follows the view point of E. George Payne, who has described propaganda as "an effort to influence opinion by any device justifying the means to ends." When peace groups stand for only one program, subordinating all others to it, he believes that they are functioning badly, for thus they contribute to a process that is sure to bring war.

The investigations of the present study have shown that a large portion of the members of the National Peace Conference engage in activities which adhere closely to a program which takes specific stands on current issues, subordinating all others to this one, even though this program is diametrically opposed to the program and policies of other equally active members. So far as has been discovered by the investigator, there has been no change by any organization from a policy which takes positions on issues to one which is impartial. The paucity of impartiality in the National Peace Conference is indicated by the fact that of the thirty-nine members, there are but four which plan peace activities and yet remain impartial, presenting pros and cons of international issues without taking sides.

If only those are pacifists who oppose all use of military force, it is necessary at the outset to recognize that the peace movement includes but few pacifists. All seek to avoid war, yet there are but four groups considered by this study to be pacifists in the strictest sense, and not all of these are religious groups.

Changing Programs and Policies

The term "change" here refers to an altered position upon a given issue, the taking of an official stand on an issue for the first time, or the withdrawal of any position on an issue. All organizations have changed in the sense that they have periodically taken positions upon issues for the first time; but when an organization has once taken a stand upon an issue, there has been discovered a certain resistance to admission that it might be desirable to retract a stand taken, or change to a different position. Of the organizations whose records indicate altered positions on issues, there are but seven organized specifically for peace, and five which have peace as but one important aim.

Graphic pictures are presented and comparisons are given in the study to show the relation of changing positions to important world events. Looking, however, panoramically at these changing ideologies, it can be stated that there is comparatively little change in positions taken. Over the time span of this investigation, for all organizations on all issues of this study, there have been recorded 235 first positions, from which there have been recorded 29 changes, representing a shift from only twelve per cent of the positions. There is an evident distaste for and resistance to change on the part of members of the group, even though present day conditions might warrant change from the standpoint of logic.

In most instances of change, a relation can be seen to important world events, and it is apparent that peace organizations have reflected the world wide effort to adjust economic difficulties. The effect of the economic factor in causing war is steadily becoming clearer to an increasing number of individuals, and the changes in the peace moves seem to reflect this clearly. In spite of the resistance to the huge expenditures for rearmament, our

program has not paralleled world expenditures for arms. The changes in peace programs have corresponded much more closely to world expenditures than to United States expenditures.

Graphically it has been shown that the number of organizations favoring arbitration has steadily increased during the period of the study, but in view of the increasing world tension, there has been a decreasing willingness on the part of disputants to yield to arbitration. The curve of the World Court has continued the trend upward, while that of the League of Nations has decreased and levelled off. It is well known that many organizations still favor the idea of a League of Nations, but feel that the present League is inadequate. On the issue of national defense but twenty-two organizations have taken a stand, and on complete disarmament only five.

Only one organization has changed *from* its 1919 position favoring the protection of economic interests abroad *to* a more pacifistic one favoring the defense of the nation only. One organization alone has changed *from* a position of pacifism, wherein it changed its position of total disarmament, *toward* the less pacifistic position of defense of the nation. The curve showing the number of organizations favoring a governmental ownership of the munitions industry advanced with the curve of governmental control until 1934, after which governmental control was far more popular. A number of organizations which oppose conscription are making registrations of conscientious objectors, so that in the event the United States is drawn into war the C. O.'s will not be called opportunists.

The trade agreement program has received wide support from the members of the various peace organizations. In the early years represented in this study, many peace organizations opposed any embroilment in foreign wars. From 1932 to 1937 the curve favoring strict neutrality rises sharply, but when isolation began to appear impossible, the curve levelled off and its trend reversed. Of the twenty-four organizations which have taken a stand opposing military training in civil educational institutions, none has retracted its position.

While all peace organizations claim to be educational in their programs, few seem to have planned their activities in the light of an understanding of the techniques used to develop attitudes. Most programs instruct by the use of literature and lectures, while comparatively few use the dramatic and graphic techniques, and provide for self-activity. Many organizations feel the desirability of removing from textbooks emphasis on nationalism that interferes with internationalism, but only four organizations have published reports of research in this field. Fifteen organizations have established research departments. Six of these are organizations whose primary purpose is to work for peace. Twenty-six of the organizations are of a distinctly religious character. Twenty-six organizations are listed in the *Directory of Liberals*.

Summary and Conclusions

Peace organizations have not abolished war, but many evidences indicate that there is an increasingly better international understanding and intellectual cooperation in the world today than in 1914, despite present-day world confusion. Peace is not merely an absence of war, but a collective consciousness of individuals who are learning to be considerate of each other. Among peace groups there is much lethargy and inaction, more apparent in the adult than in the youth groups. Despite the flood of literature and numerous radio programs, there is a group which most peace organizations, except the youth groups, have almost entirely overlooked—the unemployed.

Rife with dissatisfaction over a social order that has seemed to have trapped them, this group of unemployed, equal in size to the combined populations of Switzerland and Sweden, is easy prey for vicious "isms" that subversively seek to defeat every goal of the peace group; yet most peace groups do nothing, whereas they should realize that they cannot accomplish their ultimate ends without the collaboration and enlisted sympathetic cooperation of all social levels. To keep the labor and union groups out of the organized peace movement, as the American Youth Congress claims is being done, may eliminate argument and dissension to some extent, but it defeats the very end of the movement as a whole.

Many organizations present a broad program, but do not consciously attempt to develop attitudes through the use of recognized

attitude-developing techniques. The greatest ineffectiveness of programs is attributed to inadequate understanding of educational techniques, and failure to attempt to evaluate results. The type of program which seems to the investigator to be the more desirable is one which is unbiased and impartial, one which does not take positions on issues, but attempts to present both sides of every issue and to permit the individual to make his own decisions. The biased type of philosophy militates eventually against its own ends. On the whole, there is little evidence of change toward or away from pacifism.

Application of Conclusions

The recommendation of the investigator is for peace organizations to follow in the future a policy of unbiased attitudes on specific issues, to dissolve those programs that take specific positions on a long list of issues, or better, to combine similar organizations and to alter programs to one of impartiality; to do more research to decide what educational techniques are most effective; to develop a closer contact with the schools; to encourage the introduction of new courses and an extension of existing courses on internationalism; to approach the development of attitudes consciously and scientifically; and to keep sectarian religion out of the peace movement.

The investigator frankly states that his own views are in favor of a World Community, a World Court, and an International Police. The idea in mind, however, is not a World Community that maintains *status quo*, not one controlled by the great powers who grasp tightly their inherited wealth in natural resources as though they had created them, and who frown austerely upon the efforts to improve, of nations whose intellectual advancement demands higher standards of living; but a World Community which recognizes that "most famous nations" are all nations, a World Community which places first the idea that all men have a common spiritual denominator, to which economic, industrial, racial, scientific, and political considerations are subservient, rather than the present-day reverse of this point of view.

Continuing the Study

Those organizations which subscribe to the unbiased type of program might well evolve a plan of national scope, and approach the federal government to secure its endorsement and financial support. If not federal aid, then state support should be obtained. Research is needed to secure the support of the unemployed, and such investigation must not only enlist them in the cause of peace, but do something toward solving their own problems. The two must go hand in hand. Whatever the new developments in the peace program may be, research should be constantly at work evaluating the effectiveness of all the activities involved.

NORMALITY: AN HISTORICAL AND COMPARATIVE ANALYSIS OF THE CONCEPT[1]

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THE PROBLEM

The problem of this study is to analyze the concept of normality from an historical and comparative point of view. Special emphasis is placed upon the work of authorities of the nineteenth and twentieth centuries which has had significant influence upon present day thinking along the lines of what is normal. The subject might be treated from many angles, for instance: the legal, the medical, the physiological, the moral, and the sociological. The problem is delimited, however, in this work and an intensive study is made primarily within the confines of statistics and psychology, where an analysis, comparison, and contrast are made of the literature which deals with some phase of the concept of normality. Throughout, underlying connections, trends, and principles are stressed.

NEED FOR THE STUDY

The investigation of the concept of normality was initiated because it was felt that such study had been neglected in many fields in general, and in psychology in particular. In books on psychology and psychiatry, such as Seguin's *Idiocy: And Its Treatment*, Terman's *Genetic Studies of Genius*, and White's *Twentieth Century Psychiatry*, much attention has been devoted to the subnormal, the supernormal, or the abnormal individual. There has been an emphasis on the exceptional child or adult, but at the same time there has been a strong tendency to neglect the normal person. In conversation, in literature, and in lectures reference is made rather glibly to norms, normality, normalcy, or normal conditions. These concepts are often employed without much appreciation of their true meaning. They have been more or less taken for granted and for that reason they have not been sufficiently investigated. In like manner the normal individual has been taken for granted and has been given little or no attention. As a rule he is not spectacular and therefore he is ignored.

Within the past few years, however, there has come to be a greater interest in the normal individual. This arises out of a genuine need. Psychologists realize that the exceptional cases are significant but limited in scope. Most people are *normal*. What *most people* do will have the greatest effect not only on themselves but also on society. Therefore, it is necessary to understand the normal person. For this reason a clarification of the concept of normality is essential.

FINDINGS

The concept of normality is analyzed from a statistical point of view. The statistical norm is a measure of central tendency of an array of individuals or traits. It is the type or mode, the most common or frequent item. To illustrate, normal weight at a given age level is the weight which is most frequent at that age level. The concept is also used to refer to another measure of central tendency, the mean or average. Normal weight, according to the latter point of view, is found by weighing great numbers of individuals and averaging their weights. Thus normal, in the statistical sense, is a quantitative concept and represents a condition that prevails, not necessarily one deserving of emulation or attempted attainment.

Clustered around the statistical norm are many cases which differ from the central tendency, but which, nevertheless, comprise a so-called normal group. These normal variations or individual differences around the norm represent a very usual phenomenon. Within the range of normality the variations may be wide and may be greater in some measurements than in others.

An extension of the idea of normal variability around the norm leads to a treatment

[1] An abstract of a dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Graduate Faculty of the School of Education of New York University, 1940. The writer is indebted to the members of her advisory committee: Paul R. Radosavljevich, Chairman; Francis J. Brown; and Ernest R. Wood for their guidance during the progress of this study. Thanks are also due to Lloyd N. Yepsen for his helpful advice.

of the entire variability above or below the norm and therefore to an analysis of the normal frequency distribution and its graphic representation, the normal curve. The law which holds in this connection is sometimes called the law of error, and it has its basis in the theory of probability. It early found considerable application in astronomy. Adolphe Quetelet, however, deserves much credit for extending the use of the law to fields outside of astronomy, such as psychology, education, and sociology. An attempt is made to establish limits of normality on the normal curve and to determine the percentage of individuals included within these normal limits. An invaluable service would be rendered to statistics and psychology, if this could be done. However, there is much difference of opinion on the question, even among statisticians and mathematicians, and the limits established are usually arbitrary and variable. This may be due in part at least to the fact that there is no clearcut line of cleavage between what is normal and what is abnormal. The two conditions are not distinct, but represent a continuum.

Other criteria of normality are investigated more briefly. The normative criterion relates the norm to an ideal and is useful in logic or ethics. The non-pathological criterion associates normality with an absence of disease and is particularly applicable in medicine. The subjective criterion involves a standard in terms of oneself, and is never to be recommended. The anatomical criterion connects normality with an absence of stigmata of degeneracy. This is not generally accepted in psychology today. The accommodation criterion establishes a boundary line between normality and subnormality on the basis of facilities that exist in the community for accommodating defectives. This is practical, but it has no scientific value. The social and economic criteria could be useful in psychology where the problems of social adjustment and economic independence are considered very important, but not enough is known about them. The pedagogical norm, which relates to the average achievement in school, has not been sufficiently standardized and therefore cannot be recommended.

The criterion of normality from the point of view of intelligence tests is discussed in great detail. Much experimental work has been done in this field and as a result norms have been scientifically established, i.e., they have been standardized. There has been an objective determination of what constitutes average achievement at the various age levels. There is, however, a great difference of opinion among psychologists in regard to the establishment of norms and also with respect to where to draw the line in determining normality. Thus, normality in the field of intelligence testing is not fixed but is variable and elastic.

On the basis of these tests the mental level of the average adult is reached somewhere in the teens or early twenties. This may mean a low mental level for the normal adult or it may mean a weakness in the tests given him. In either case, he is not precluded from acquiring greater knowledge and skills than the adolescent possesses.

It is necessary to guard against several pitfalls in studying normality on the basis of intelligence tests. For one thing, two individuals of the same chronological age may have mental capacities normal for their age and still have different mentalities. Careful attention should be paid to individual differences. Then again, a mental defective should not be confused with a normal child having the same mental age, since the two are very different in many respects. Furthermore, mental activity should not be mistaken for mental level. And lastly, in view of the possibility of latent normality, it is necessary, especially with younger children, to supplement the data from the tests by evidence from other sources.

Normality is treated from the point of view of mental hygiene. Here, too, authorities disagree in their criteria and diagnosis of normality. Some believe that the most important characteristic of the normal mind is an integration of the personality. According to this criterion, it is not sufficient to possess desirable traits. They must work together harmoniously and produce a state of balance or equilibrium, which may be essentially glandular, emotional, or mental. Normality is also linked up with good adjustment, as illustrated by social adjustment, and involves among other things the ability to face reality. Another mental-hygiene criterion of normality which is stressed by some psychologists is the ability to outgrow childish tendencies. These criteria have not been adequately standardized, but they are important in psychology.

A life conforming to all that has so far been advocated for normality probably never existed. In other words, the normal individual is not free from defects. He may have fixed ideas and fears, may be suggestible, may have exaggerated recall or inability to recall, or may even experience temporal disorientation. These manifestations are merely individual differences and should not cause alarm. They represent normal deviations within the normal. Compensation for deficiencies usually takes place. Therefore, the individual adjusts satisfactorily to life's situations and may to all intents and purposes be considered a normal person.

Normality is shown to be a concept relative to various factors. The type of norm employed will color the interpretation of the findings. An individual norm is the usual condition of some person. A group or social norm is the most common or frequent condition of a group of individuals. To illustrate, the memory of an individual may be normal in the sense that it conforms to the usual run of his own performances, or in the sense that it is like the average memory of those of his group. Thus, a person may be normal when judged by one norm, but not by the other.

Normality is relative to the criteria used. For example, a person might be normal on the basis of intelligence tests, and yet be subnormal socially or economically. Furthermore, the individuals with whom the comparison is made will help to determine normality. An individual may be normal in an institution for defectives, but subnormal in the population as a whole. The situation producing a response will help to determine whether or not the response is normal. The response given in one situation may be inadequate in another situation. Normality is relative to different environments in the same cultural group, and it is relative to different cultural and racial groups.

Conclusions

In studying normality in the various areas it has been found that the normal differs from the abnormal in degree rather than in kind. This is true in statistics, where the extremes of the normal curve represent the abnormal in the distribution. In the field of intelligence testing the inferior or the superior individual differs from the normal in degree rather than in kind. Even in mental hygiene the abnormal trait is nothing more than an exaggeration of the normal. In this field, however, it has not been possible to subject most of the traits to statistical analysis.

Since the abnormal is an extreme of the normal, it is often very difficult to establish a satisfactory boundary line between the two groups. For instance, where should the boundary line be drawn between an abnormal stutterer and an individual who, like most people, occasionally becomes confused and shows signs of mild stuttering? At what specific point does a fear become abnormal, since everyone has fears of one kind or another in a mild degree? Boundary lines established between normal and abnormal groups are usually marked off arbitrarily.

Normality is a specific concept, i.e., an individual may be normal in one trait and not in another. This is a fact which cannot be stressed too much. As a rule one criterion of normality is used to judge an individual and conclusions are drawn about the individual as a whole. This should be avoided. No person can be measured solely by one yardstick. The purpose of the investigation and the information available will help to determine the choice of a criterion. There should never be an arbitrary and dogmatic application of one or another standard of normality.

The normal man is a mediocre individual. On the basis of intelligence tests one might conclude that his mental level is low, though it is true that not every psychologist takes these findings seriously. From the point of view of mental hygiene the normal individual is defective, though he usually compensates for his deficiencies. He gets along somehow, but he does not startle the world with his accomplishments. He leaves this to the abnormal person who in a sense is to be admired. However, if well adjusted to life the normal individual has attained a very important goal. In regard to good adjustment, everyone should strive to attain normality.

In conclusion, it should be pointed out that it seemed possible when this study was started to establish fixed norms which would serve as infallible standards in measuring normality. The present research has upset this preconceived notion. There is so much difference of opinion among psychologists regarding normality, and the concept is so entirely dependent upon the time, place, and

criteria employed, that one is unlikely to emphasize too much the idea that *normality is a relative and elastic concept.*

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THE NATURE OF THE RELATIONSHIP BETWEEN EDUCATION AND CAREERS OF NEGROES LIVING IN MANHATTAN, 1929-1937[1]

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The Problem and Its Importance

There is a widespread belief that, whatever general or civic values are inherent in Negro education, the amount and character of the training bear slight relation to vocational opportunity. Many educators[2] have discussed the advisability of stimulating the Negro to higher educational goals. Some of them maintain that advanced education will help the Negro little, if any, in making his vocational and social adjustments. Others feel that only by additional education and vocational equipment will it be possible to break down racial prejudice and secure for the Negro equality of opportunity, which is so essential in a democracy. Therefore, vocational counselors are confronted with the perplexing problem of advising the Negro student to choose between a trade course which might prove valuable in securing employment or a higher academic course with its dubious employment value.

The purpose of this study was to determine the education and careers of Negroes living in Manhattan, during the years 1929–1937, in order to discover the nature of the relationship between their scholastic training and their subsequent occupations. The factors tending to inhibit or stimulate vocational placement and progress of the Negro were also considered.

The following factors affecting employment were also studied: Influence of age on employment, influence of educational background on wage level, reasons for leaving positions, number of job referrals prior to permanent placement, reasons for not being hired, and employers' requirements of applicants.

[1] Submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the School of Education of New York University, 1940.

[2] *The Journal of Negro Education*, V (July, 1936), contained a number of articles dealing with various aspects of these problems.

The Purpose of the Investigation

The four major purposes were:

(1) To discover the effectiveness of Negro education.

(2) To determine the extent of discrimination against the Negro in education and industry.

(3) To indicate the obstacles confronting the Negro in seeking employment.

(4) To discover the need for vocational guidance programs and employment activities in so far as the Negro is concerned.

Historical and Theoretical Background of the Problem

Past studies having a bearing upon this research are of various types and cover a wide geographical area. First, there are those which deal with the occupational interests of Negro high school and college students. Most of these studies conclude that professional work, teaching, medicine, and nursing are very popular choices.

Secondly, studies of the occupational background of employed Negroes have been made. In some instances, higher educational training proved helpful in securing better jobs; in other cases, there was no vocational advantage derived from increased education. The after-school careers were not found to be related to the vocational ambitions of the students or to the preparation which they had received at school. The vast majority of the high school graduates were found to engage in unskilled and semi-skilled vocations. The majority of colored girls graduating from New England colleges returned South in order to secure employment as school teachers. One study showed that the great majority of college graduates entered the professional field, particularly the field of teaching.

Thirdly, studies have been made which demonstrate the great need for occupational courses for Negro students.

Fourthly, several surveys have been made of the prevailing occupational conditions in New York City. These investigations show that Negro women in New York City are engaging in many different occupational fields. In the professions, opportunities for Negro women are found to be decreasing, but openings for competent commercial workers are being made. There is a trend away from domestic work to industrial positions. Most of the professional workers have attended college, normal, or graduate school. The majority of the commercial workers are high school graduates. Domestic and personal service workers have had less scholastic training than other workers.

Another study made in New York City shows that the Negress is a marginal worker just beginning to enter industrial life in the United States. Some very unusual proportionate gains in certain occupational fields have been made, although the relative numbers are still not very large. Although the majority are employed in service occupations, there is a significant proportion in a variety of other forms of gainful employment. This study shows that there is a lack of opportunity for college trained workers in the upper level jobs.

A third study made in New York City shows that the Negro girl, in so far as native ability and success in training are concerned, is well qualified to be the competitor of the white girl in the field of clerical work. Negro women in the clerical field are steadily and rapidly increasing in number.

An investigation in Brooklyn shows that prejudice, tradition, and inexperience hinder the occupational progress of the Negro. Many of the vocational training schools refuse to accept colored students.

Fifthly, a number of studies have been made which have a general bearing on the subject of this thesis. One investigator reports that discrimination against the Negro has increased rather than decreased as he has entered the semi-skilled and skilled occupations.

Another investigator concludes that Negroes are crowded into the lower salaried positions because of color prejudice, and also because of inefficiency. Business firms in New York City are gradually being induced to employ colored help, public sentiment having been aroused to demand positions for colored workers in establishments serving Negroes.

The present study differs from the aforementioned researches in that it discovers the relation between the level of educational training of Negroes living in New York City and their subsequent occupations. This research deals with both men and women. Conflicting evidence has been presented concerning the influence of education on occupational placement of the Negro. Objective data are presented in this study indicating the part played by education in determining the type of work in which the Negro is employed in New York City.

The Aims of This Study and the Procedure Followed

All the cases included in this study are Negroes living in Manhattan who have sought vocational guidance and job placement at the New York Urban League Placement Bureau or at the WPA Adult Guidance Service between 1933 and January, 1938.

The sources of the data were the employment records of the New York Urban League, and case histories of the Harlem Branch of the WPA Adult Guidance Service. The New York Urban League records cover 5553 cases, their applications dating from January, 1933, through December, 1937, while the records of the WPA available at the time of this study deal with 1246 individuals from January, 1935, through August, 1937. There are 6799 cases altogether.

It was found necessary in making this study to select only essential data from the great mass of available source material supplied by these two organizations.

In the primary tabulations, the cases were grouped according to educational level (partial grammar school, grammar school graduation, partial high school, high school graduation, partial college, college graduation, post-graduate study, and vocational, technical, or business school training), and these groups were subdivided into six age classes: 17–24 years, 25–29 years, 30–39 years, 40–49 years, 50–59 years, and 60 years and over. Male and female cases were studied separately. All the available record cards (6799) of the WPA Guidance Service and the New York Urban League Employment Office were carefully examined, and data relating to personal background, educational training, occupational history, and employers'

requirements were classified, enumerated, and tabulated. The WPA and New York Urban League data were not combined at this point.

Following this preliminary gathering of material, a second set of tables was constructed which organized the data into five main divisions:

1. Personal Background—nationality, citizenship, length of time in the United States and in New York City, marital status, number of children or dependents, economic condition, and living arrangements.
2. Previous Work History
   A. First Job—kind of work, weekly earning, reason for leaving. (These data were available from the WPA records only.)
   B. Jobs held during the five years prior to application at either the WPA or the New York Urban League office —type of work, weekly earning, reason for leaving, duration of employment.
3. Final Referral—jobs to which applicant was sent, kind of job, number of referrals before permanent placement, reasons for rejection.
4. Employers' Requirements of Applicants for Jobs—age and color preferred, weekly wage offered. (These data were available from the New York Urban League records only.)

Only in cases of identical items was a total made of the WPA and the New York Urban League data. In some instances the figures could not be combined, since some of the data supplied by one organization were lacking in the records of the other.

From this second set of work-sheets the tables included in this thesis were constructed. This last set embodies the totals of the other tables and presents in a usable form the vast amount of material given in the preliminary tabulations.

The tables follow the same sequence as was originally devised at the beginning of the study. The first group deals with the personal background of the cases, the second with the first jobs of the cases, the third with their past jobs (held within the five-year period prior to application date at either employment office), and the last group summarizes the employers' specifications for employee requirements. Footnotes accompanying the tables designate those data which were obtainable from only one source. In all other cases, the totals are indicated.

The investigation of the occupational history of the cases in this study includes a consideration of their first positions and an analysis of the jobs which the subjects held during the five years prior to application at the WPA Guidance Service or the New York Urban League Office. The initial occupational placements warranted separate treatment, even though these data were available from the WPA source only. It was interesting to compare these first positions with those filled later on in life. The primary objective in all the occupational analyses in this thesis, however, was to study the influence of education on job placement, whether the position was the first or among the last to be held by the applicant.

Since the ages of these cases range from seventeen to sixty or more years, the dates of their initial employment are spread over a long period of time. Many of the older individuals started working forty-five years prior to the time this study was made, while some of the younger cases began their occupational careers only several months or one year prior to that time.

The cases have been classified from the standpoint of educational background as well as age. Those individuals who attended grammar school without graduating, and those who had completed their grammar school training, were placed in one educational group. The same procedure was followed with regard to the high school and college trained cases respectively. Normal school training was considered on a par with partial college training. The post-graduate group is composed of individuals who continued their education after having received the bachelor's degree. The last educational group, persons who have had a vocational, technical, or business school training, embraces those cases with one of the following educational backgrounds: two years of an industrial course, one year of nursing education, a nine-month business course if completed, or a one-year business course if not completed. Most of these cases have had a high school education besides their vocational schooling.

The occupations of these cases have been classified into seven main groups, this ar-

rangement being based on the United States Census Bureau's reports, as far as possible, considering the characteristics of the data of this particular study. Some of the Federal occupational categories, such as mining and lumbering, were omitted from this classification because none of the subjects ever engaged in these types of work. The occupational categories are:

I. Professions and Related Positions

A. Professions

1. Actors
2. Architects
3. Artists (including commercial artists)
4. Clergymen
5. Dentists and doctors
6. Engineers (technical)
7. Interior decorators
8. Journalists
9. Lawyers
10. Librarians
11. Musicians
12. Nurses (trained)
13. Pharmacists
14. Photographers
15. Social and welfare workers
16. Teachers

B. Semi-Professions

1. Boxers
2. Detectives
3. Embalmers and undertakers
4. Entertainers
5. Laboratory technicians
6. Mechanical dentists

C. Professional Service Attendants

1. Architects' assistants
2. Dentists' and doctors' assistants
3. Interior decorators' assistants
4. Models
5. Photographers' assistants
6. Ushers, check-room attendants, wardrobe mistresses

II. Commercial Positions

1. Agents—advertising, insurance, real estate, canvassers
2. Bookkeepers, accountants, secretaries, and statisticians
3. Filing, shipping, mail, and general clerks
4. Receptionists, messengers, office boys and girls, delivery boys and girls
5. Retail dealers
6. Stenographers, typists, and telephone operators
7. Store clerks, salespeople, and cashiers
8. Miscellaneous

III. Domestic Service

1. Butlers, chauffeurs (private), and gardeners
2. Child nurses and practical nurses
3. Cleaners, chambermaids, and matrons (public maids)
4. Cooks
5. Couple work (wife—domestic and/or cook; husband—chauffeur and/or gardener)
6. Domestic workers and housekeepers
7. Handymen and window-washers
8. Laundresses (private)
9. Maids (personal) and valets
10. Mothers' helpers
11. Part-time domestic workers
12. Waiters (private)
13. Miscellaneous

IV. Industrial Positions

A. Apparel trades

1. Cleaners, pressers, and dyers
2. Dressmakers
3. Milliners
4. Tailors

B. Barbers and beauticians

C. Bootblacks and newsboys

D. Building service

1. Bellmen, doormen, watchmen, and guards
2. Elevator operators
3. Superintendents and firemen

E. Building Trades

1. Boilermakers
2. Builders
3. Carpenters
4. Masons
5. Painters
6. Plasterers
7. Plumbers
8. Tinsmiths

F. Chauffeurs (public), truckmen, and delivery men
G. Electricians, radio and automobile mechanics
H. Factory workers
I. Food Trades
   1. Butchers
   2. Cooks (public)
   3. Counter workers
   4. Kitchen-men, bus-men, and dishwashers
   5. Waiters (public)
   6. Salad and sandwich workers
   7. Pantry workers
J. Laundresses (public)
K. Movers and longshoremen
L. Porters and laborers (general)
M. Printers
N. Miscellaneous

V. Government Projects
WPA, CCC, ERB workers
VI. Applicants who have never worked
VII. No data supplied

Percentages have been computed for all the data, and for the wage data the median, and lower and upper quartiles (Q^1 and Q^3) were also computed to supplement the percentage figures. The reliability of the important differences was determined by computing the probable error of the differences and determining the critical ratio.

Of the seventy-four tables included in the complete study, several are presented here for purposes of illustration:

A critical analysis of each table has been made. Wherever other similar studies are known to exist, references are included to these. Possible explanations of the results are stated by considering the various factors that influence occupational careers of the Negroes in New York City.

The obstacles hindering the Negro's vocational progress have also been considered. The factors of union exclusion, the depression and attendant unemployment problems, racial prejudice, misconceptions regarding Negro efficiency, lack of vocational guidance, and inadequate educational and industrial training have been discussed.

Summary of Findings and Conclusions

The cases are predominantly American and had resided in New York City for less than fifteen years at the time this study was made. Most of the individuals either lived with their parents or rented private rooms. Approximately one-half of the group were unmarried, while one-third were married. The group was of average or slightly better than average personality, and their physical health records revealed them to be physically fit for any type of employment.

INFLUENCE OF EDUCATIONAL BACKGROUND ON INITIAL EMPLOYMENT, PAST OCCUPATIONS,[3] AND FINAL REFERRALS[4]

(1) The only two occupational fields in which a direct proportional relationship was found between the amount of scholastic training and job placement were the professional and the government project positions.

(2) In the professions, this positive influence of educational training was evident in all three types of positions, i.e., initial occupations, past employment, and final referrals, especially in the college and post-graduate groups.

(3) In past occupations (1928 through 1937) and final referrals, higher education proved to be of advantage in securing government project positions.

(4) An increase in educational training had no appreciable effect on initial occupations, past employment, and final referrals in the semi-professional and professional service attendant fields.

(5) In initial employment along industrial lines, educational training exerted a negative influence in determining job placement. However, in the industrial jobs held by the cases from 1928 through 1937, as well as the final referrals in this field, educational background played little part in determining job placements.

(6) An inverse proportional relationship was found to exist between the amount of scholastic training and domestic job placement. This was evident for initial occupations, past occupations, and job referrals in this field. The cases with grammar school training held most of the domestic positions.

(7) In commercial lines, vocational, technical, or business training proved more valuable than any other type of education. Most of the jobs held in this field from 1928 through 1937, as well as the referrals to work of this type, were filled by individuals with

[3] Positions held from 1928 through 1927.
[4] Positions to which applicants were sent.

TABLE I

FIRST OCCUPATIONS OF ALL MALES AND FEMALES OF VARIOUS EDUCATIONAL LEVELS

Educational Level	Number of Cases	Professions and Related Positions: Professions		Semi-Professions		Professional Service Attendants		Commercial	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10
Partial Grammar and Grammar School Graduates	213	1	0.5	4	1.9	2	0.9	15	7.0
Partial High School and High School Graduates	562	21	3.7	10	1.8	6	1.7	129	22.9
Partial College and College Graduates	320	95	29.7	7	2.2	4	1.2	73	22.8
Post-Graduate	6	4	66.7						
Vocational, Technical, and Business School	45	2	4.4					12	26.7
Total	1146	123	10.7	21	1.8	12	1.0	229	20.0

Educational Level	Domestic		Industrial		Government Projects		Applicants Have Worked		No Data	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Col. 11	Col. 12	Col. 13	Col. 14	Col. 15	Col. 16	Col. 17	Col. 18	Col. 19	Col. 20	Col. 21
Partial Grammar and Grammar School Graduates	54	25.3	87	40.9	3	1.4	12	5.6	35	16.4
Partial High School and High School Graduates	79	14.0	184	32.7	12	2.1	35	6.2	86	15.3
Partial College and College Graduates	32	10.0	70	21.9	6	1.9	4	1.02	29	9.1
Post-Graduate			1	16.7	1	16.7				
Vocational, Technical, or Business School	7	15.6	13	28.9	3	6.7	1	2.2	7	15.6
Total	172	15.0	355	31.0	25	2.2	52	4.5	157	13.7

TABLE II

OCCUPATIONS FROM 1928 THROUGH 1937 OF ALL MALES AND FEMALES OF VARIOUS EDUCATIONAL LEVELS, EXCLUSIVE OF THEIR FIRST JOBS

Educational Level	Number of Cases	Number of Jobs	Professional and Related Positions: Professions		Semi-Professions		Professional Service Attendants		Commercial	
			Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10	Col. 11
Partial Grammar and Grammar School Graduates	1835	2839	15	0.5	10	0.4	5	0.2	74	2.6
Partial High School and High School Graduates	2250	3109	87	2.8	43	1.4	35	1.1	515	16.6
Partial College and College Graduates	1819	3216	887	27.6	73	2.2	19	0.6	821	25.5
Post-Graduate	120	230	141	61.3			2	0.9	35	15.2
Vocational, Technical, or Business School	467	811	118	14.5	18	2.2	16	2.0	229	28.2
Total	6491	10205	1248	12.2	144	1.4	77	0.8	1674	16.4

TABLE II—Continued

Educational Level	Domestic		Industrial		Government Projects		Applicants Never Worked		No Data	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Col. 12	Col. 13	Col. 14	Col. 15	Col. 16	Col. 17	Col. 18	Col. 19	Col. 20	Col. 21	Col. 22
Partial Grammar and Grammar School Graduates	1681	59.2	931	32.8	43	1.5	22	0.8	58	2.0
Partial High School and High School Graduates	1194	38.4	1003	32.2	90	2.9	69	2.2	73	2.3
Partial College and College Graduates	408	12.7	822	19.3	254	7.9	56	1.7	76	2.4
Post-Graduate	5	2.2	16	7.0	19	8.2	2	0.9	10	4.3
Vocational, Technical, or Business School	135	16.6	225	27.7	36	4.4	14	1.7	20	2.5
Total	3423	33.5	2797	27.4	442	4.3	163	1.6	237	2.3

TABLE III

FINAL REFERRALS OF ALL MALES AND FEMALES OF VARIOUS EDUCATIONAL LEVELS*

Educational Level	Number of Cases	Number of Referrals	Professions and Related Positions: Professions		Semi-Professions		Professional Service Attendants	
			Number	Per cent	Number	Per cent	Number	Per cent
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9
Partial Grammar and Grammar School Graduates	2043	3645	3	0.1	3	0.1	2	0.0
Partial High School and High School Graduates	2271	3321	17	0.5	6	0.2	16	0.5
Partial College and College Graduates	1819	2188	55	2.5	6	0.3	14	0.6
Post-Graduates	120	135	14	10.4	1	0.7	1	0.7
Vocational, Technical, or Business School	467	587	8	1.4	4	0.7	9	1.5
Total	6720	9876	97	1.0	20	0.2	42	0.4

Educational Level	Commercial		Domestic		Industrial		Government Projects	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Col. 10	Col. 11	Col. 12	Col. 13	Col. 14	Col. 15	Col. 16	Col. 17	Col. 18
Partial Grammar and Grammar School Graduates	24	0.6	2052	56.2	339	9.3	78	2.1
Partial High School and High School Graduates	153	4.6	1289	38.8	448	13.5	124	3.7
Partial College and College Graduates	174	8.0	222	10.1	234	10.7	384	17.5
Post-Graduates	8	5.9	1	0.7	5	3.7	42	31.1
Vocational, Technical, or Business School	68	11.6	87	14.8	76	12.9	42	7.2
Total	427	4.3	3651	36.9	1102	11.2	670	6.8

Educational Level	Class Study		Transferred		Charity		No Data	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Col. 19	Col. 20	Col. 21	Col. 22	Col. 23	Col. 24	Col. 25	Col. 26	Col. 27
Partial Grammar and Grammar School Graduates	39	1.1	13	0.4	24	0.6	1068	29.3
Partial High School and High School Graduates	50	1.5	65	2.0	25	0.8	1128	34.0
Partial College and College Graduates	20	0.9	46	2.1	13	0.6	1020	46.6
Post-Graduates	1	0.7					62	45.9
Vocational, Technical, or Business School	2	0.3	5	0.8	1	0.2	285	48.5
Total	112	1.1	129	1.3	63	0.6	3563	36.1

* Similar tables were constructed for the males and females respectively.

TABLE IV

OCCUPATIONS FROM 1928 THROUGH 1937 OF MALES AND FEMALES 30–39 YEARS OF AGE OF VARIOUS EDUCATIONAL LEVELS, EXCLUSIVE OF THEIR FIRST JOBS

Educational Level	Number of Cases	Number of Jobs	Professions and Related Positions: Professions		Semi-Professions		Professional Service Attendants		Commercial	
			Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10	Col. 11
Partial Grammar and Grammar School Graduates	731	1033			1	0.1			19	1.8
Partial High School and High School Graduates	500	754	36	4.8	13	1.7	14	1.8	99	13.1
Partial College and College Graduates	437	852	253	29.7	33	3.9	2	0.2	253	27.8
Post-Graduate	52	109	72	66.0			2	1.8	16	14.7
Vocational, Technical, or Business School	113	220	38	17.3	5	2.3	8	3.6	53	24.1
Total	1833	2968	399	13.4	52	1.8	26	0.9	424	14.3

Educational Level	Domestic		Industrial		Government Projects		Applicants Never Worked		No Data	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Col. 12	Col. 13	Col. 14	Col. 15	Col. 16	Col. 17	Col. 18	Col. 19	Col. 20	Col. 21	Col. 22
Partial Grammar and Grammar School Graduates	635	61.5	338	31.8	19	1.8	4	0.4	17	1.6
Partial High School and High School Graduates	308	40.8	252	33.4	19	2.5			13	1.7
Partial College and College Graduates	95	11.1	146	12.1	70	7.0	2	0.2	14	1.6
Post-Graduate	3	2.8	5	4.6	6	5.5	2	1.8	3	2.8
Vocational, Technical, or Business School	42	19.1	64	29.1	7	3.2	1	0.4	2	0.9
Total	1083	36.5	805	27.1	121	4.1	9	0.3	49	1.6

In order to determine the effect of age on employment, similar tables were constructed for the following age groups: 17–24 years, 25–29 years, 40–49 years, 50–59 years, and 60 years and over. Then the percentages of cases at the various age levels employed in the same occupational field were compared.

vocational, technical, or business training. However, in initial employment in commercial positions, the high school and college trained cases fared as well as those with vocational background.

(8) A slight increase in professional placements occurred subsequent to initial employment. Whereas one-tenth of the cases held professional jobs when starting their working careers, one-eighth of them were engaged in occupations of this type during 1928 through 1937.

(9) A shift away from commercial work is evident from the fact that one-fifth of the cases started out in this field, approximately one-sixth held commercial positions during 1928 through 1937, and only one twenty-fifth were referred to such positions.

(10) Many cases gravitated to domestic work after starting out in other fields. Only 15 per cent held domestic jobs as their initial employment, whereas one-third were engaged in domestic work during 1928 through 1937.

(11) Following initial employment, there was a downward trend in industrial positions, and a further decrease was noted in job referrals of this type. Approximately one-third of the cases held industrial positions when first employed, one-fourth were engaged in industrial work during 1928 through 1937, and only one-tenth received referrals to industrial jobs.

TABLE V

WEEKLY WAGES FROM 1928 THROUGH 1937 OF ALL MALES AND FEMALES OF VARIOUS EDUCATIONAL LEVELS EXCLUSIVE OF THEIR FIRST JOBS

Educational Level	Number of Jobs	0—$4.99		$5—9.99		$10—$14		$15—$19		$20—24		$25—29	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10	Col. 11	Col. 12	Col. 13	Col. 14
Partial Grammar and Grammar School Graduates	2817	46	1.3	481	17.1	618	21.9	412	14.6	181	6.4	92	3.3
Partial High School and High School Graduates	3040	47	1.5	523	17.2	654	21.5	549	18.0	232	7.6	110	3.6
Partial College and College Graduates	3160	51	1.6	246	7.8	453	14.3	577	18.2	339	10.7	219	6.9
Post-Graduate	228			9	3.9	14	6.1	19	8.3	23	10.1	12	5.3
Vocational, Technical, or Business School	797	7	0.9	70	8.8	128	16.1	147	18.4	71	8.9	45	5.6
Total	10042	151	1.5	1329	13.2	1867	18.6	1704	17.0	846	8.4	478	4.8

Educational Level	$30—34		$35—39		$40—44		$45—49		$50 on		Volunteer[1]		Tips only[2]	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Col. 15	Col. 16	Col. 17	Col. 18	Col.19	Col. 20	Col. 21	Col. 22	Col. 23	Col. 24	Col. 25	Col. 26	Col. 27	Col. 28	Col. 29
Partial Grammar and Grammar School Graduates	51	1.8	33	1.2	11	0.4	6	0.2	10	0.3	3	0.1	3	0.1
Partial High School and High School Graduates	44	1.4	56	1.8	9	0.3	4	0.1	12	0.4	41	1.3	4	0.1
Partial College and College Graduates	102	3.2	79	2.5	43	1.4	16	0.5	35	1.1	152	4.8	15	0.5
Post-Graduate	28	12.3	19	8.3	6	2.6	5	2.2	17	7.4	9	3.9		
Vocational, Technical, or Business School	17	2.1	25	3.1	6	0.8	1	0.1	10	1.2	19	2.4	5	0.6
Total	242	2.4	212	2.1	75	0.7	32	0.3	84	0.8	224	2.2	27	0.3

Educational Level	Room and Board[3]		No Data		Total Number Earning Regular Weekly Wages[4]	Q_1	M_D	Q_3
	Number	Per cent	Number	Per cent				
Col. 30	Col. 31	Col. 32	Col. 33	Col. 34	Col. 35	Col. 36	Col. 37	Col. 38
Partial Grammar and Grammar School Graduates	2	0.1	868	30.8	1941	9.57	13.59	18.77
Partial High School and High School Graduates	2	0.1	753	24.8	2240	9.90	14.20	19.15
Partial College and College Graduates	3	0.1	830	26.3	2160	12.68	17.86	24.32
Post-Graduate	3	1.3	64	28.1	152	18.95	29.58	37.37
Vocational, Technical, or Business School	1	0.1	245	30.7	527	12.14	16.99	23.04
Total	11	0.1	2760	27.5	7020	10.74	15.48	21.26

[1] Worker donated services gratis.
[2] Remuneration consisted solely of tips earned while working.
[3] Remuneration consisted solely of room and board for the worker.
[4] Cases serving as volunteers without pay, cases working for tips only, and cases working for room and board only, are excluded in determining the number for calculation of Q_1, M_D, and Q_3.

TABLE VI

REASONS GIVEN BY ALL MALES AND FEMALES OF VARIOUS EDUCATIONAL LEVELS FOR LEAVING OCCUPATIONS HELD FROM 1928 THROUGH 1937, EXCLUSIVE OF THEIR FIRST JOBS

	Partial Grammar and Grammar School Graduates		Partial High School and High School Graduates		Partial College and College Graduates		Post-Graduate		Vocational, Technical, or Business School		Total	
Number of Jobs	2817		3040		3160		228		797		10042	
Reasons for Leaving Jobs	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10	Col. 11	Col. 12	Col. 13
Better Job	88	3.1	136	4.5	255	8.1	20	8.8	56	7.0	555	5.5
Business Depression	587	20.8	765	25.2	661	20.9	34	14.9	196	24.6	2243	22.3
Employee Changed Plans	394	14.0	417	13.7	335	10.6	14	6.1	93	11.7	1253	12.5
Employer Changed Plans	520	18.4	406	13.4	171	5.4	5	2.2	57	7.1	1159	11.5
Inconvenient Living and Working Conditions	325	11.5	402	13.2	877	27.7	78	34.2	132	16.6	1814	18.1
Unsatisfactory Living and Working Conditions	428	15.2	413	13.6	237	7.5	22	9.6	91	11.4	1191	11.8
Racial Discrimination	15	0.5	13	0.4	13	0.4			2	0.2	43	0.4
Union Difficulties	19	0.7	21	0.7	8	0.2			2	0.2	50	0.5
Still on Same Job	161	5.7	131	4.3	163	5.2	12	5.3	43	5.4	510	5.1
No Data	280	9.9	336	11.0	440	13.9	43	18.8	125	15.7	1224	12.2

(12) Negroes are gaining ground in the government project field. Whereas only 2.2 per cent of the cases held government project positions when first employed, 4.2 per cent were so employed during 1928 through 1937, and 6.8 per cent were referred to work of this type. The reason why so few were engaged in government projects at the outset of their employment careers is that the government program is of comparatively recent inauguration.

(13) Only 1 per cent of all the job referrals were to professional positions.

(14) Referrals to domestic positions were most numerous. Approximately two-fifths of the case were sent to these jobs.

Influence of Age on Initial Employment, Past Occupations, and Final Job Referrals

Professions

(1) In the professional field, the 25–29 year group showed an increase over the 17–24 year olds in initial employment, occupations held during 1928 through 1937, and final referrals.

(2) For first occupations, the proportions engaging in professional work continued to rise in the 30–39 and 40–49 year groups, but decreased when the 50-year mark was reached.

(3) In the past occupations (those held from 1928 through 1937) and in the job referrals, after the increase at the 25–29 year level, the proportions decreased.

Table VII

Duration of Positions Held From 1928 Through 1937 by All Males and Females of Various Educational Levels, Exclusive of Their First Jobs

Educational Level	Number of Cases	0–5 Mos.		6 Mos.—11 Mos.		1 Year—1 Year, 11 Mos.		2 Years—2 Years, 11 Mos.	
		Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	COL. 7	Col. 8	Col. 9	Col. 10
Partial Grammar and Grammar School Graduates	2626	514	19.6	397	15.1	423	16.1	324	12.3
Partial High School and High School Graduates	2547	537	21.1	379	14.9	439	17.2	326	12.8
Partial College and College Graduates	2896	582	20.1	334	11.5	519	17.9	398	13.7
Post-Graduate	224	25	11.2	17	7.6	49	21.9	40	17.8
Vocational, Technical, or Business School	766	136	17.7	93	12.1	140	18.3	93	12.1
Total	9059	1794	19.8	1220	13.4	1570	17.3	1181	13.0

Educational Level	3 Years—4 yrs., 11 mos.		5 Years—9 yrs., 11 mos.		10 Years—15 yrs., 11 mos.		16 Years—24 yrs., 11 mos.		25 Years and over	
	Number	Per cent	Number	Per cent	Num. ber	Per cent	Number	Per cent	Number	Per cent
Col. 11	Col. 12	Col. 13	Col. 14	Col. 15	Col. 16	Col. 17	Col. 18	Col. 19	Col. 20	Col. 21
Partial Grammar and Grammar School Graduates	347	13.2	298	11.3	89	3.4	26	1.0	4	0.2
Partial High School and High School Graduates	289	11.3	222	8.7	53	2.1	6	0.2	3	0.1
Partial College and College Graduates	339	11.7	231	8.0	63	2.2	8	0.3	3	0.1
Post-Graduates	28	12.5	18	8.0	9	4.0				
Vocational, Technical, or Business School	110	14.4	70	9.1	22	2.9	7	0.9	3	0.4
Total	1113	12.3	839	9.2	236	2.6	47	0.5	13	0.1

TABLE VII—Continued

Educational Level	Never Worked		No Data		Still on Same Job		Total of Previous Columns	Q_1	M_D	Q_3
	Number	Per cent	Number	Per cent	Number	Per cent		Yr. Mo. Day	Yr. Mo. Day	Yr. Mo. Day
Col. 22	Col. 23	Col. 24	Col. 25	Col. 26	Col. 27	Col. 28	Col. 29	Col. 30	Col. 31	Col. 32
Partial Grammar and Grammar School Graduates	11	0.4	186	7.1	7	0.3	2422	0- 7-12	1- 8-15	3- 5-15
Partial High School and High School Graduates	34	1.4	258	10.1	1	0.0	2254	0- 6-12	1- 5-24	3- 0-12
Partial College and College Graduates	52	1.8	364	12.6	3	0.1	2477	0- 6-21	1- 7-12	3- 0-27
Post-Graduate	2	0.9	35	15.6	1	0.4	186	1- 0- 3	2- 0-18	3- 3-18
Vocational, Technical, or Business School	13	1.7	75	9.8	4	0.5	671	0- 8- 0	1- 9- 3	3- 4-15
Total	112	1.2	918	10.1	16	0.2	8013	0- 7- 0	1- 7-18	3- 2-18

TABLE VIII

NUMBER OF JOB REFERRALS BEFORE PERMANENT PLACEMENT[1] OF ALL MALES AND FEMALES OF VARIOUS EDUCATIONAL LEVELS

Educational Level	Number of Cases	Number of Referrals Before Permanent Placement	1		2		3		4		5	
			Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9	Col. 10	Col. 11	Col. 12	Col. 13
Partial Grammar and Grammar School Graduates	2043	894	286	32.0	86	9.6	51	5.7	32	3.6	22	2.4
Partial High School and High School Graduates	2271	947	450	47.5	71	7.5	44	4.6	17	1.8	12	1.3
Partial College and College Graduates	1819	599	287	47.9	47	7.8	10	1.7	8	1.3	5	0.7
Post-Graduate	120	40	23	57.5	2	5.0	2	5.0				
Vocational, Technical, or Business School	467	157	66	42.0	14	8.9	7	4.4	2	1.3	5	3.2
Total	6720	2637	1112	42.1	220	8.6	114	4.3	59	2.2	44	1.7

Educational Level	6		7		8		9		10 and Over		No Permanent Placement[2]	
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Col. 14	Col. 15	Col. 16	Col. 17	Col. 18	Col. 19	Col. 20	Col. 21	Col. 22	Col. 23	Col. 24	Col. 25	Col. 26
Partial Grammar and Grammar School Graduates	10	1.1	10	1.1	7	0.8	5	0.6	19	2.1	334	37.3
Partial High School and High School Graduates	12	1.3	2	0.2	5	0.5	2	0.2	9	0.9	281	29.6
Partial College and College Graduates	4	0.5	2	0.3			1	0.2			153	25.5
Post-Graduate											11	27.5
Vocational, Technical, or Business School							1	0.6			52	33.1
Total	26	1.0	14	0.5	12	0.4	9	0.3	29	1.1	831	31.5

[1] Positions lasting six months or more are considered permanent.

[2] Includes (a) cases not referred to jobs; (b) cases reporting to jobs lasting less than six months; (c) cases referred to class study; (d) cases recommended to government agencies for possible employment.

TABLE VIII—Continued

Educational Level	No Data		Total of Previous Columns	Q_1	M_D	Q_3
	Number	Per cent				
Col. 27	Col. 28	Col. 29	Col. 30	Col. 31	Col. 32	Col. 33
Partial Grammar and Grammar School Graduates	32	3.6	528	0.5	0.9	2.5
Partial High School and High School Graduates	42	4.4	624	0.3	0.7	1.2
Partial College and College Graduates	82	13.7	364	0.3	0.6	0.9
Post-Graduate	2	5.0	27	0.3	0.6	0.9
Vocational, Technical, or Business School	10	6.4	95	0.4	0.7	1.4
Total	168	6.4	1638	0.4	0.7	1.5

TABLE IX

RESULTS OF ALL JOB REFERRALS OF ALL MALES AND FEMALES OF VARIOUS EDUCATIONAL LEVELS AND REASONS FOR NOT BEING HIRED

Educational Level	Number of Cases	Number of Job Referrals	Results of Job Referrals: Hired		Not Hired		No Data	
			Number	Per cent	Number	Per cent	Number	Per cent
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9
Partial Grammar and Grammar School Graduates	2043	2469	1439	58.3	968	40.0	42	1.7
Partial High School and High School Graduates	2271	1844	1030	55.8	771	41.8	43	2.3
Partial College and College Graduates	1819	777	455	58.6	295	38.0	27	3.5
Post-Graduate	120	50	29	58.0	19	38.0	2	4.0
Vocational, Technical, or Business School	467	252	139	55.2	106	42.1	7	2.8
Total	6720	5392	3092	57.2	2179	40.3	121	2.2

Educational Level	Number Not Hired	Reasons For Not Being Hired: Employer Changed Plans		Failed to Report To Job		Unsatisfactory Living and Working Conditions	
		Number	Per cent	Number	Per cent	Number	Per cent
Col. 10	Col. 11	Col. 12	Col. 13	Col. 14	Col. 15	Col. 16	Col. 17
Partial Grammar and Grammar School Graduates	988	258	26.1	91	9.2	186	17.8
Partial High School and High School Graduates	771	206	26.7	81	10.5	136	17.6
Partial College and College Graduates	295	72	24.4	18	6.1	45	15.2
Post-Graduate	19	8	42.1			1	5.3
Vocational, Technical, or Business School	106	32	30.2	6	5.6	17	16.0
Total	2179	576	26.4	196	9.0	385	17.6

Educational Level	Reasons For Not Being Hired: Unsuitable to Employer		No Data	
	Number	Per cent	Number	Per cent
Col. 18	Col. 19	Col. 20	Col. 21	Col. 22
Partial Grammar and Grammar School Graduates	273	27.6	180	18.2
Partial High School and High School Graduates	159	20.6	189	24.5
Partial College and College Graduates	56	19.0	104	35.2
Post-Graduate	5	21.3	5	26.3
Vocational, Technical, or Business School	24	22.6	27	25.5
Total	517	23.7	505	23.1

* Similar tables were constructed for the male and female cases separately.

TABLE X

EMPLOYERS' REQUIREMENTS OF APPLICANTS FOR VARIOUS OCCUPATIONS, AND WEEKLY SALARIES OFFERED

Type of Occupation	Number[1]	Per cent	Duration of Position: Permanent Number	Permanent Per cent	Temporary Number	Temporary Per cent	No Data Number	No Data Per cent
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5	Col. 6	Col. 7	Col. 8	Col. 9
Professional	21	0.6	12	57.1	1	4.8	8	38.1
Semi-Professional	0	0.0						
Professional Service Attendants	8	0.2	2	25.0	5	62.5	1	12.5
Commercial	204	6.2	107	52.4	41	20.1	56	27.4
Domestic	2634	80.4	1557	59.0	413	15.6	664	25.2
Industrial	411	12.2	209	50.9	66	16.0	136	33.1
Total	3278	99.6	1887	57.6	526	16.0	865	26.4

Type of Occupation	Age Preferred: Young (21–34 Years) Number	Young Per cent	Middle-Aged (35–49 Years) Number	Middle-Aged Per cent	Old (50 Years and Over) Number	Old Per cent	No Data Number	No Data Per cent
Col. 10	Col. 11	Col. 12	Col. 13	Col. 14	Col. 15	Col. 16	Col. 17	Col. 18
Professional	1	4.8	4	19.0			16	76.2
Semi-Professional								
Professional Service Attendants	5	62.5					3	37.5
Commercial	38	18.6	9	4.4	1	0.5	156	76.4
Domestic	495	18.8	548	20.8	16	0.6	1575	59.7
Industrial	45	10.9	28	6.8			338	82.2
Total	584	17.8	589	18.0	17	0.5	2088	63.7

Type of Occupation	Color Preferred: Light Number	Light Per cent	Dark Number	Dark Per cent	No Data Number	No Data Per cent
Col. 19	Col. 20	Col. 21	Col. 22	Col. 23	Col. 24	Col. 25
Professional					21	100.0
Semi-Professional						
Professional Service Attendants					8	100.0
Commercial	4	2.0	2	1.0	198	97.0
Domestic	96	8.6			2538	96.2
Industrial	4	1.0			407	99.0
Total	104	3.2	2	0.1	3172	96.7

Type of Occupation	Weekly Salaries: 0—$9 Number	0—$9 Per cent	$10—$14 Number	$10—$14 Per cent	$15—19 Number	$15—19 Per cent	$20—29 Number	$20—29 Per cent
Col. 26	Col. 27	Col. 28	Col. 29	Col. 30	Col. 31	Col. 32	Col. 33	Col. 34
Professional	1	4.8	7	33.3	2	9.5	7	33.3
Semi-Professional								
Professional Service Attendants			7	87.5				
Commercial	24	11.8	64	31.4	16	7.8	7	3.4
Domestic	368	13.9	1572	59.6	90	3.4	43	1.6
Industrial	111	27.0	139	33.8	89	21.6	28	6.8
Total	504	15.4	1789	54.6	197	6.0	85	2.6

Type of Occupation	Weekly Salaries (continued): $30—50 Number	$30—50 Per cent	per hr. .35—.55 Number	per hr. .35—.55 Per cent	Tips Number	Tips Per cent	Room & Board Number	Room & Board Per cent
Col. 35	Col. 36	Col. 37	Col. 38	Col. 39	Col. 40	Col. 41	Col. 42	Col. 43
Professional	4	19.0						
Semi-Professional								
Professional Service Attendants					1	12.5		
Commercial								
Domestic	2	0.1	505	19.1			1	0.0
Industrial	5	1.2			1	0.2	2	0.5
Total	11	0.3	505	15.4	2	0.1	3	0.1

TABLE X—Continued

Type of Occupation	Weekly Salaries (concluded) No Data		Total of Previous Columns 27—37	Q_1	M_D	Q_3
	Number	Per cent				
Col. 44	Col. 45	Col. 46	Col. 47	Col. 48	Col. 49	Col. 50
Professional			21	13.04	15.36	24.11
Semi-Professional						
Professional Service Attendants			7		12.50	
Commercial	93	45.6	111	10.10	12.46	14.04
Domestic	53	2.0	2075	10.48	12.13	13.81
Industrial	36	8.8	372	9.30	12.70	16.63
Total	182	5.6	2586	10.40	12.20	14.01

[1] Data from New York Urban League records.

Semi-Professions

(1) More of the cases 25–29 years of age than of those at the lowest age level (17–24 years) entered semi-professional lines when starting to work. At the next higher age level, 30–39 years, a decrease was noted.

(2) No differences due to age were found in the occupational histories of those engaging in semi-professional work from 1928 through 1937.

(3) In referrals to semi-professional positions, the influence of age was insignificant.

Professional Service Attendants

(1) The number of cases entering this field as initial employment increased in direct proportion to age up to the 40-year level. (The increase, however, in the 30–39 year unit over the 25–29 year group was very slight.)

(2) The age factor was unimportant in influencing professional service attendant positions held by the cases during 1928 through 1937.

(3) More of the 17–24 year group than of any other were referred to jobs in this field. As the age scale was ascended, the job referrals decreased.

Commercial Positions

(1) The 25–29 year group was favored over the 17–24 year olds in initial employment in the commercial field. From the 20-year group on, the proportions decreased as the age level was raised.

(2) Most of the commercial positions held from 1928 through 1937.

(3) More of the 17–24 year group than of any other were referred to jobs in this field. As the age scale was ascended, the job referrals decreased.

Commercial Positions

(1) The 25–28 year group was favored over the 17–24 year olds in initial employment in the commercial field. From the 30-year group on, the proportions decreased as the age level was raised.

(2) Most of the commercial positions held from 1928 through 1937 were filled by members of the youngest age group. The proportion in the commercial field decreased with each age increase.

(3) The 17–24 year olds were successful in securing most of the job referrals to positions in this field.

Domestic Service

(1) The universality of domestic work as a choice for a first job is shown by the fact that the number of individuals engaging in this field increased in direct proportion to age. This shows that a number of persons who started their working careers many years ago, as well as young cases who only recently began to work, have chosen this type of occupation.

(2) As the age scale is ascended, more of the cases turned to domestic work, as shown by their occupational histories (1928 through 1937).

(3) Referrals to domestic positions increased in direct proportion to age up to the 50–59 year level, at which point a decrease began.

Industrial Positions

(1) The proportions of cases engaging in industrial work as their first jobs increased directly with age, excluding the 25–29 year group, in which a decrease was noted.

(2) The differences due to age were slight in the industrial positions held by the cases from 1928–1937.

(3) In the referrals to industrial positions, the 25–29 and 30–39 year units had a lower proportion than the youngest age group (17–24). At the 40 year level, the percentage of referrals increased, and this upward trend continued through the next age group (50–59 years).

Government Projects

(1) Government project positions, as first jobs, were obtained mainly by the 17–24 and 25–29 year groups. Fewer of the older cases were so employed, because the development of this type of work has been so recent.

(2) The age factor did not prove potent in influencing government project positions held by the cases during 1928 through 1937.

(3) In referrals to government project positions, the individuals 25–29 years of age fared better than the 17–24 year olds, but from the 30-year group on, a decrease was evident.

Influence of Educational Background on Wage Level

(1) Educational background exerted little influence on the weekly remuneration of the males when engaged on their first jobs, as well as during subsequent employment.

(2) For the female cases, an increase in educational training proved to be financially advantageous. This was true for initial employment and for positions held during 1928 through 1937.

(3) The women earned $2.30 less than the men on their first jobs, and $5.29 less during subsequent employment (1928 through 1937).

(4) When the initial employment of all the cases is considered, it is evident that increased educational training proved valuable in securing a higher wage in some of the educational groups. Whereas the college trained cases earned more than either the grammar school or high school individuals, the earnings of the high school group did not exceed those of the cases at the grammar school level.

(5) The post-graduates and college trained individuals earned more while employed during 1928 through 1937 than those at the lower educational levels.

(6) Only a slight increase in weekly remuneration occurred subsequent to initial employment.

Reasons For Leaving First Jobs and Positions Held From 1928 Through 1937

(1) The same reasons were advanced, and the reasons ranked in the same order, for discontinuing initial employment as for leaving past occupations (1928 through 1937).

(2) The major reasons, in the order of their importance, were: the business depression, and inconvenient living and working conditions.

(3) The business depression was the predominant reason for the cessation of employment.

Duration of Positions Held From 1928 Through 1937

(1) Educational background exerted little influence on duration of positions.

(2) The post-graduates held their positions longest (2 years and 18 days), although the differences in the medians of duration at the various educational levels were slight.

(3) The median of duration of positions held by all the cases from 1928 through 1937 was one year, seven months, and 18 days.

(4) Of the male group, those with grammar-school training remained on their jobs longest, and those with college training remained for the shortest period of time.

(5) The female post-graduates held their positions longest and those with high school training remained for the shortest period of time.

(6) The females left their positions five months sooner than the males.

Number of Job Referrals Before Permanent Placement[5]

(1) The differences in number of referrals at the various educational levels were very slight.

(2) The cases with grammar school training had the greatest number of job referrals before they secured positions at which they could remain for at least six months.

(3) The grammar school group showed the greatest variation in number of referrals, while those with college or post-graduate training had a short span between the Q_1 and Q_3 of the number of their referrals.

(4) The median of the number of all job referrals was 0.7.

[5] Positions held for at least six months are considered permanent.

Results of Job Referrals

(1) The amount of scholastic training did not influence the proportion of cases who were successful in being hired.

(2) The grammar school, college, and post-graduate groups had about the same percentage of hired cases (58.3 per cent, 58.6 per cent, and 58.0 per cent respectively).

(3) Of the entire groups, over one-half were hired when sent out on jobs, and approximately two-fifths failed to be hired.

Reasons For Not Being Hired When Referred to Positions

(1) At all educational levels except the grammar school, a change of employer's plans was the predominant reason for the applicant's not being hired. (At the grammar school level, unsuitability to employer was first in order of importance, and a change of employer's plans ranked second.)

(2) The other reasons, in order of their importance, were: unsuitability to employer, unsatisfactory living and working conditions, and failure to report to assigned job.

(3) Each of the two highest ranking reasons, change of employer's plans and unsuitability to employer, accounted for approximately one-fourth of the cases. Slightly less than one-fifth of the cases failed to be hired because of unsatisfactory living and working conditions, and approximately one-tenth did not secure their jobs because they failed to report to them.

Employers' Requirements of Applicants

The source of these data was the New York Urban League records, which included 3278 requests for applicants (1925 through 1937). Since the requests for professional and professional service attendants were too few to be significant, the following observations are based on employers' orders for commercial, domestic, and industrial workers.

Types of Positions Offered

(1) The vast majority of requests (80.4 per cent) were for domestic help.

(2) Approximately one-tenth (12.2 per cent) of the requests were in the industrial field, and about one-twentieth (6.2 per cent) were for commercial positions.

(3) The positions offered in the professional and professional service attendant fields were very few in number (0.6 per cent and 0.2 per cent respectively).

(4) There were no calls for applicants to semi-professional positions.

Age Preference

(1) Taking all the employers' orders together, about the same proportion of middle-aged persons (35–49 years) as of young applicants (21–24 years) was requested.

(2) The employers preferred the young to the middle-aged for commercial and industrial positions.

(3) For domestic work, there was no significant difference between the demand for middle-aged and for young workers.

Color Preference

(1) Only 3.3 per cent of all the employers' requests specified a desired skin color.

(2) Of the 3.3 per cent, practically all (3.2 per cent) were for Negroes of light complexion.

(3) Color preference was more frequently stated for domestic servant positions than for any other type of work.

(4) Only 0.1 per cent of the requests were for dark-skinned employees.

Weekly Salary Offered

(1) The median of all the salaries offered was $12.20.

(2) A weekly wage of approximately $12.00 was offered for commercial and industrial work.

(3) The industrial wage scale presented the widest variation (Q_1, $9.30 and Q_3, $16.62).

Conclusions

This study shows that educational training does influence the vocational careers of Negroes. Contrary to popular belief, higher education of the Negro has proved to be valuable in securing professional positions. It was also very encouraging to note the inverse proportional relationship between the amount of scholastic training and domestic job placement.

In industrial work, as well as the semi-professional and professional service attendant fields, no appreciable effect of education was found to exist. As might be expected, a vocational, technical, or business school background proved most helpful in securing commercial positions.

The gravitation toward domestic work, subsequent to initial employment in other fields, and the downward trends in the commercial and industrial positions indicate a tendency toward slower vocational progress of the Negro. These variations emphasize the importance of factors other than educational background which influence the occupational placement of the Negro, i.e., the depression and its attendant unemployment problems which have affected the Negro more severely than the white, racial prejudice, common misbeliefs regarding Negro efficiency, lack of vocational guidance and industrial education of the Negro, and union exclusion.

The increase in government project positions, while valuable to the Negro temporarily, does not provide an adequate solution for the absorption of Negroes with higher educational training. Even though the problem of Negro employment is so intimately related to economic conditions of the country as a whole, a vast improvement could be achieved through the provision of better educational facilities for the Negro, an effective program of vocational guidance, a modern system of industrial education, an opportunity to join labor organizations, a constructive program of education for all regarding the race problem, and a lessening of racial prejudice.

There is a need for additional Negro professional workers, provided a better distribution of openings is made. Job fields are changing. The Negro worker must be encouraged and trained to be so exceptionally efficient in new fields that additional openings will be created for other members of the colored race. Simultaneously, those workers in occupational fields already penetrated by the Negro should strive to build up a reputation for workmanship of the highest quality. There must be an earnest endeavor by the Negro to seize and to make the fullest use of every opportunity which will contribute toward his advancement.

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